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WILDLIFE REVIEW

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Except as indicated, abstracts are by Kenneth J. Chiavetta, editor,
and Mary L. Fisher, editorial assistant.

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SOILS

Brubacher, John I., and others. SOIL SURVEY OF SEDGWICK COUNTY, COLORADO. *SCS*. i + 61 p., 11 figs. + single-fold maps based on aerial photos and bound in. Dec. 1969. For sale by Superintendent of Documents. *WR 138: 2*
With a section on the use of soils for wildlife.

Buzzard, Charles R., and others. SOIL SURVEY OF THE CURRY AREA, OREGON. *SCS*. i + 70 p., 10 figs. + single-fold maps based on aerial photos and bound in. Jan. 1970. For sale by Superintendent of Documents. *WR 138: 2*
With a section on wildlife.

Churchill, Norman J., and others. SOIL SURVEY OF FULTON COUNTY, PENNSYLVANIA. *SCS*. i + 93 p., 12 figs. + single-fold maps based on aerial photos and bound in. Nov. 1969. For sale by Superintendent of Documents. *WR 138: 2*
With a section on wildlife.

Hamilton, Vernon L., and others. SOIL SURVEY OF GRANT COUNTY, KANSAS. *SCS*. i + 52 p., 17 figs. + single-fold maps based on aerial photos and bound in. Dec. 1969. For sale by Superintendent of Documents. *WR 138: 2*
With a section on wildlife.

Robertson, Nelse W. SOIL SURVEY OF GREENE COUNTY, ARKANSAS. *SCS*. i + 65 p., 11 figs. + single-fold maps based on aerial photos and bound in. Dec. 1969. For sale by Superintendent of Documents. *WR 138: 2*
With a section on the use of soils for wildlife.

Williams, Glen E., and Donald G. Batolina. SOIL SURVEY OF LINCOLN COUNTY, OKLAHOMA. *SCS*. i + 57 p., 11 figs. + single-fold maps based on aerial photos and bound in. Jan. 1970. For sale by Superintendent of Documents. *WR 138: 2*
With a section on the use of soils for wildlife.

Woodruff, George A., and others. SOIL SURVEY OF THE ANTELOPE VALLEY AREA, CALIFORNIA. *SCS*. i + 187 p., 3 figs. + double-fold maps based on aerial photos and bound in. Jan. 1970. For sale by Superintendent of Documents. *WR 138: 2*
With a section on the use of soils for wildlife.

CONSERVATION EDUCATION

Canadian Wildlife Service. HINTERLAND WHO'S WHO. *Queen's Printer* (Ottawa). Illus. 1969. *WR 138: 2*
Part of a series of 8.5" x 11" folded leaflets each describing the life history, habits, and behavior of an animal or bird. Four-page leaflets on the chipmunk, mountain sheep, mallard, and ruffed grouse are available. [See *WR 134: 3* for other leaflets in the series.]

BIBLIOGRAPHIES, DIRECTORIES, BIOGRAPHY, HISTORY

Laird, Edith M., editor. CONSERVATION AND WILDLIFE: BIBLIOGRAPHY IV. *Field Res. Projects.* iii + 321 p. 1970. Available from Field Res. Projects, Coconut Grove, Miami, Fla. *WR 138: 3*

The bibliography continues the series whose emphasis is on the preservation of natural areas and conservation of resources and wildlife. [See *WR 133: 4.*]

Pucek, Michalina. POLISH THERIOLOGICAL BIBLIOGRAPHY, 1968-1969. *Acta Theriol.* 14(34): 483-497. 15 Dec. 1969. *WR 138: 3*

[Mammals Res. Inst., Białowieża, Poland.]

PLANTS--FOREST SURVEYS

Choate, Grover A., and John S. Spencer, Jr. FORESTS IN SOUTH DAKOTA. *U.S. Forest Serv. Resource Bull.* INT-8. 40 p., 10 [figs.] + single-fold map. 1969. *WR 138: 3*

South Dakota has 1.7 million acres of forest lands 89% of which is commercial forest. Statistical data on volume of timber, net annual growth and removal, mortality, and projections of commercial forest production are given in 28 tables.

WILDLIFE--BIOTAS, ECOLOGY, NATURAL HISTORY

Childs, Henry E., Jr. BIRDS AND MAMMALS OF THE PITMEGEA RIVER REGION, CAPE SABINE, NORTHWESTERN ALASKA. *Biol. Paps. Univ. Alaska* no. 10. iii + 76 p., 2 figs. May 1969. Price $1.60. *WR 138: 3*

[Cerritos Coll., Norwalk, Calif.] The geologic background, climate, soils, vegetational types and land utilization are discussed. Five major plant communities are described and used to analyze the distribution of birds and mammals. These communities are Barrens, Upland Meadows, Wet Meadows, Marshes and Shrub Types. Ninety species of birds were recorded of which 55 species nested within the Pitmegea drainage. Twenty-three species of mammals were reported. Evidence of reproductive activity, local abundance and distribution and ecological interrelationships are presented. Particular emphasis is placed on microtine rodents and their predators. Evidence for a population irruption in the tundra vole *(Microtus oeconomus)* in 1959 is reported.--From abstr.

Garrido, Orlando H., and Albert Schwartz. ANFIBIOS, REPTILES Y AVES DE CAYO CANTILES. [AMPHIBIANS, REPTILES AND BIRDS OF CAYO CANTILES.] *Poeyana Ser. A*, no. 67. p. 1-49 + one folded map. Nov. 1969. In Spanish with English summ. *WR 138: 3*

[Inst. Biol., Acad. Cienc. Cuba, Havana.]

Główaciński, Zbigniew, and Zbigniew Witkowski. FAUNA BIESZCZADÓW ZACHODNICH I ZAGADNIENIA JEJ OCHRONY. [THE FAUNA OF THE WESTERN BIESZCZADY MTS., AND PROBLEMS OF ITS CONSERVATION.] *Ochrona Przyrody* 34: 127-160, 14 figs. 1969. In Polish with English summ. *WR 138: 3*

[Nat. Conserv. Res. Center, Polish Acad. Sci., Kraków, Poland.] Forty-three species of mammals and 130 spp. of birds are reported. Also included are sections on the reptiles, amphibians, and fish and invertebrates.

Moreau, R. E. CLIMATIC CHANGES AND THE DISTRIBUTION OF FOREST VERTEBRATES IN WEST AFRICA. *J. Zool.* 158(1): 39-61. May 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 3*

WILDLIFE--NATURAL AREAS & REFUGES

Bozsko, Szvetlána I. A VÁROSI PARKOK MINT ÖKOLÓGIAI EGYSÉGEK ÉS ORNITHO-FAUNISZTIKAI JELLEMZÉSÜK. [PARKS AS ECOLOGICAL ENTITIES AND THEIR ORNITHOLOGICAL CHARACTERISTICS.] *Aquila* 75: 131-149. 1968. In Hungarian and Russian. *WR 138: 3*

National Parks of Russia, Germany and Poland are considered.

WILDLIFE--NATURE PROTECTION & RARE & EXTINCT SPECIES

Bruns, Herbert. LEBENSSCHUTZ ODER BIOPROTEKTION ALS INTEGRATION VON MENSCHEN-, TIER-, PFLANZEN-, NATUR-, UND LANDSCHAFTSSCHUTZ WISSENSCHAFTLICHE BEGRÜNDUNG UND PRAKTISCHE FORDERUNGEN ZUR ERHALTUNG UND SCHAFFUNG GESUNDER LEBENSGRUNDLAGEN DES MENSCHEN, DER TIERE UND DER PFLANZEN. [BIO-PROTECTION OR PROTECTION OF LIFE AS INTEGRATION OF PROTECTION OF MEN AND PROTECTION OF ANIMALS, PLANTS AND NATURE.] *Biol. Abhandlungen* 32-33. 56 p., 1 fig. 1969. In German with French and English summ. *WR 138: 4*
[Inst. Biol. & Lebensschutz, 29 Weiheralle, Schlangenbad-Georgenborn, Germany.]

Carvalho, José C. M. LISTA DAS ESPÉCIES DE ANIMAIS E PLANTAS AMEACADAS DE EXTINCÃO NO BRASIL. [LIST OF PLANT AND ANIMAL SPECIES THREATENED WITH EXTINCTION IN BRAZIL.] *Fundacão Brasilieira Conservacão Nat., Bol. Informativo* 1968(3): 11-13. 1968. In Portuguese. *WR 138: 4*
A list of 19 spp. of mammals, 24 spp. of birds, 2 spp. of reptiles, and 13 spp. of plants.

WILDLIFE--EFFECTS OF CHEMICALS, WEATHER, CARS, ETC.

Bitman, Joel, Helene C. Cecil, Susan J. Harris, and Paul E. James. RELATIONSHIP OF BETA BACKSCATTER COUNTS TO EGG SHELL THICKNESS AND CALCIUM CONTENT. *Poultry Sci.* 48(6): 2184-2185, 1 fig. Nov. 1969. *WR 138: 4*
[Agr. Res. Serv., Beltsville, Md.] "In Japanese quail."

Borg, K., H. Wanntorp, K. Erne, and E. Hanko. ALKYL MERCURY POISONING IN TERRESTRIAL SWEDISH WILDLIFE. *Viltrevy* 6(4): 301-379, 4 figs. + 1 pl. 1969. In English with Swedish summ. *WR 138: 4*
Of 253 seed-eating birds (pheasants, partridges, pigeons, finches, corvine birds), found dead, 48% had mercury levels of above 2 mg/kg (liver), 30% above 5 mg/kg, 20% above 10 mg/kg and 13% more than 20 mg/kg. Of 298 seed-eating birds (pheasants, pigeons, bramblings, corvine birds), shot for investigation, 41% carried liver mercury levels of above 2 mg/kg, 19% above 5 mg/kg, 12% above 10 mg/kg and 4% more than 20 mg/kg. Of 412 predatory birds (hawks, falcons, buzzards, eagles, owls), some of which were found dead, others shot or trapped, 62% had liver mercury levels exceeding 2 mg/kg, 36% exceeding 5 mg/kg, 19% exceeding 10 mg/kg and 11% more than 20 mg/kg. Mercury poisoning was demonstrated in some mammalian predators as well, such as foxes, martens, and polecats. In grazing mammals, such as roe deer and hares, the residue levels were negligible. This was found to apply also to reindeer.--From summ.

Brewerton, H. V. DDT IN FATS OF ANTARCTIC ANIMALS. *New Zealand J. Sci.* 12 (2): 194-199. June 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 4*

Bull, P. C., and D. G. Dawson. MORTALITY AND SURVIVAL OF BIRDS DURING AN UNSEASONABLE SNOW-STORM IN SOUTH CANTERBURY, NOVEMBER 1967. *Notornis* 16(3): 172-179. Sept. 1969. *WR 138: 4*
[Anim. Ecol. Div., DSIR, Lower Hutt, New Zealand.]

Dahlgren, Robert B., and Raymond L. Linder. EGGSHELL THICKNESS IN PHEASANTS GIVEN DIELDRIN. *J. Wildl. Mgmt.* 34(1): 226-228. Jan. 1970. *WR 138: 4*
[S. Dak. Coop. Wildl. Res. Unit, Brookings.] Abstract: For 16 weeks, penned breeding hen pheasants *(Phasianus colchicus)* were given one capsule per week containing either lactose or lactose and 4, 6, or 10 mg technical grade dieldrin. Under the conditions of this experiment, no significant differences *(P>0.05)* in eggshell thickness were found between any of the control and dieldrin groups.

Dindal, Daniel L. ACCUMULATION AND EXCRETION OF Cl^{36} DDT IN MALLARD AND LESSER SCAUP DUCKS. *J. Wildl. Mgmt.* 34(1): 74-92, 1 fig. Jan. 1970. *WR 138: 4*
[State Univ. Coll. Forestry, Syracuse, N.Y.] Abstract: The ingestion, metabolism, storage, and excretion of radio-labeled chlorine-36 DDT in wild mallard ducks *(Anas platyrhynchos)* and lesser scaup ducks *(Aythya affinis)* was investigated during 1964 and 1965. A single application of isotope-labeled

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pesticide was made to a 4-acre marsh at the rate of 0.2 lb/A in 1964. A total of 112 ducks was subsequently introduced to the treated unit and collected after various exposure periods. Twenty-one tissues and organs from each duck were assayed for DDT residues using liquid scintillation spectrometry, electron capture gas-liquid chromatography, and thin-layer chromatography. A total of 3,760 experimental tissue samples from the 112 ducks and 850 background samples from 29 ducks were processed. Residues of DDT were found at some time in all tissues tested except the testes of lesser scaup. Lesser scaup thyroids, spleen, testes, and ovaries contained no detectable residues during the second year. The compounds DDE, DDD, and *p,p'*-DDT were most common, but DDE was the predominant metabolite found throughout the 2-year period. DDMU was recovered from the liver and brain of both species. Metabolite concentrations are given for tissues sampled. Definite relationships exist between the type of food ingested (plant or animal) and DDT residues. This is reflected in the higher residue levels in scaup tissues. Some of the highest residue concentrations were found in leg fat (mallard 32.8 ppm; scaup 67.2 ppm) and neck fat (mallard 43.8 ppm), and in the uropygial gland (mallard 34.7 ppm; scaup 36.8 ppm), and adrenal glands (mallard 14.8 ppm; scaup 18.3 ppm). Dynamics of equilibrium storage and excretion of DDT residues were also observed.

Gabrielson, Ira N. OIL POLLUTION. *Natl. Parks Magazine* 44(270): 4-9, illus. Mar. 1970. *WR 138: 5*

Oil extraction operations are taking a constant toll of bird and marine life, both from toxic hydrocarbons in oil spills, and from the chemical dispersants and detergents used to combat the spillage. Development of oil fields on Alaska's Arctic coast raises even greater ecological and biological problems concerning the delicate balance of life dependent on the tundra.

[Galayda, Joseph, compiler.] SPECIAL STUDY SHOWS INCREASED CAR-KILL OF ANIMALS. *N.J. Outdoors* 20(10): 22-23. Apr. 1970. *WR 138: 5*

Summarization of a 3-year study during Sept. 1966-Aug. 1969.

Gill, John A., B. J. Verts, and Alan G. Christensen. TOXICITIES OF DDE AND SOME OTHER ANALOGS OF DDT TO PHEASANTS. *J. Wildl. Mgmt.* 34(1): 223-226, 1 fig. Jan. 1970. *WR 138: 5*

[Brainerd Area Vocational Tech. School, Brainerd, Minn.] Abstract: Median lethal concentrations of *p,p'*-DDT, *p,p'*-DDD, *p,p'*-DDE, and a formulation of technical DDT in the diets of 7-day-old ring-necked pheasants *(Phasianus colchicus)* were 550 ppm, 522 ppm, 1,086 ppm, and 935 ppm, respectively. The median lethal concentration of *o,p'*-DDT was not established, but was determined to be in excess of 5,000 ppm. On the basis of the relative toxicities of these chemicals, degradation of *p,p'*-DDT to *p,p'*-DDE in the environment would appear to enhance the survival of exposed birds. Because *p,p'*-DDE is reported to reduce the productivity in some species of birds, an advantage gained by the individual through degradation of *p,p'*-DDT might not be an advantage to populations.

Hamrick, William J. THE EFFECTS OF ARASAN-ENDRIN TREATED PINE SEED ON BOBWHITE QUAIL, GRAY SQUIRREL AND TURKEY. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 106-114. 1968 [1969]. *WR 138: 5*

[Ala. Coop. Wildl. Res. Unit, Auburn.] "It was concluded that small rodents and seed-eating small birds could be adversely affected by having access to treated seed."

Heath, Robert G., James W. Spann, and J. F. Kreitzer. MARKED DDE IMPAIRMENT OF MALLARD REPRODUCTION IN CONTROLLED STUDIES. *Nature* 224(5214): 47-48. 4 Oct. 1969. *WR 138: 5*

[Patuxent Wildl. Res. Center, Laurel, Md.] Abstract: DDE in concentrations of 10 and 40 p.p.m. in the feed of penned mallards induced significant eggshell thinning and cracking and a marked increase in embryo mortality. DDD and DDT impaired reproduction, but less severely than DDE, a widespread breakdown product of DDT.

Hunt, L. Barrie. PHYSIOLOGICAL SUSCEPTIBILITY OF ROBINS TO DDT POISONING. *Wilson Bull.* 81(4): 407-418. Dec. 1969. *WR 138: 6*

[Eastern Ill. Univ., Charleston.] Following elm spraying on the Madison campus of the University of Wisconsin in 1959-61, at least 232 adult robins apparently died of DDT poisoning between the extreme dates of 6 April and 20 June. Males died earlier and in greater numbers than females. Most dead and dying robins contained almost no subcutaneous body fat, males averaging 69.4 g and females 72.8 g. The seasonal loss of fat reserves in male robins appeared to increase their susceptibility to DDT poisoning with fatter females showing greater tolerance.--From summ. Courtesy/ Paul A. Stewart.

Janda, J., and M. Böseová. ÚČINEK NOVÝCH RODENTICIDŮ NA DROBNOU ZVĚŘ. [EFFECTS OF SOME RODENTICIDES ON SMALL GAME.] *Lesnický Časopis* 14(41): 115-124, 2 figs. 1968. In Czech with Russian, French, and English summ. *WR 138: 6*

Janda, Jiří, and Marie Böseová. THE TOXIC EFFECT OF ZINC PHOSPHIDE BAITS ON PARTRIDGES AND PHEASANTS. *J. Wildl. Mgmt.* 34(1): 220-223. Jan. 1970. *WR 138: 6*

[Res. Inst. Forest & Game Mgmt., Zabraslav nad Vltavou, Czechoslovakia.] Abstract: The toxicity and acceptance of 2.5 percent zinc phosphide treated wheat (called Nera grains) to partridges *(Perdix perdix)* and pheasants *(Phasianus colchicus)*, was determined. The preparation was found to be quite persistent in moist air and was highly poisonous, hence a real danger, to partridges and pheasants.

Jenkins, James H., and Timothy T. Fendley. THE EXTENT OF CONTAMINATION, DETECTION, AND HEALTH SIGNIFICANCE OF HIGH ACCUMULATIONS OF RADIOACTIVITY IN SOUTHEASTERN GAME POPULATIONS. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 89-95. 1968 [1969]. *WR 138: 6*

[Univ. Ga., Athens.] Due to human dietary habits the present radionuclide levels in game species are not considered a serious public health hazard, but monitoring of this situation should be continued.--From abstr.

Keith, James O. INSECTICIDE RESIDUES IN FISH-EATING BIRDS AND THEIR ENVIRONMENTS. *Aves* 5(1): 28-41. 1968. *WR 138: 6*

[Denver Wildl. Res. Center, Denver, Colo.] Abstract: Review of data on insecticide residues in wetland habitats, fish, and fish-eating birds shows that, 1) both treated and untreated wetlands are contaminated with insecticides, 2) the fate and behavior of insecticides vary between areas, 3) the relative contamination of different environmental components is not the same in different habitats, 4) residues in fish are quite variable, but highest levels occur in or near treated areas, 5) residues in fish-eating birds differ between individuals within the same population, and 6) the exposure of fish-eating birds is determined by their movements and feeding activities in relation to the degree of contamination in fish and wetland habitats that are utilized. As residues in individual birds are quite variable, differences in effects can be expected within local aggregations and species populations.

Kinsky, F. C. AN UNUSUAL SEABIRD MORTALITY IN THE SOUTHERN NORTH ISLAND (NEW ZEALAND) APRIL, 1968. *Notornis* 15: 143-155. 1968. [From Auk 87(1), 1970.] *WR 138: 6*

Korschgen, Leroy J. SOIL--FOOD-CHAIN--PESTICIDE WILDLIFE RELATIONSHIPS IN ALDRIN-TREATED FIELDS. *J. Wildl. Mgmt.* 34(1): 186-199. Jan. 1970. *WR 138: 6*

[Mo. Dept. Conserv., Columbia.] Abstract: Soil--food-chain--pesticide wildlife relationships were investigated to learn the concentration of pesticide residues present in soils, macro-invertebrates, vertebrates, and seeds as a result of annual applications of aldrin at recommended rates for pest control. Two central Missouri cornfields treated with aldrin at 1 lb/acre, for 16 and 15 of the past 17 years, were selected for study during 1965-67. Primary samples collected for residue analyses included soils, earthworms (Lumbricidae), crickets (Gryllidae), and two kinds of ground beetles (Carabidae) obtained during early

April, June, August, and October. Vertebrates and plant seeds collected during 1967 included white-footed mice *(Peromyscus maniculatus)*, toads *(Bufo americanus)*, snakes *(Thamnophis sirtalis* and *Pituophis sayi)*, corn *(Zea mays)*, foxtail *(Setaria faberii)*, and annual sunflower *(Helianthus annuus)*. Pesticide residues consisted primarily of dieldrin, the degradation product of aldrin. Combined aldrin and dieldrin residues, as two-field all-season averages, wet weight basis, were: soils, 0.31 ppm; earthworms, 1.49 ppm; crickets, 0.23 ppm; *Harpalus* ground beetles, 1.10 ppm; *Poecilus* ground beetles, 9.67 ppm; white-footed mice, 0.98 ppm; toads, 3.53 ppm; garter snakes, 12.35 ppm; and corn, foxtail, and sunflower seeds less than 0.02 ppm each. Unusually high average residues (37.48 ppm) in *Poecilus* beetles during June, 1967, were attributed to abnormally high soil moisture and predacious feeding habits of these insects.

Lamont, Thair, and William Reichel. ORGANOCHLORINE PESTICIDE RESIDUES IN WHOOPING CRANES AND EVERGLADE KITES. *Auk* 87(1): 158-159. Jan. 1970. *WR 138: 7*

[Patuxent Wildl. Res. Center, Laurel, Md.] "These residues are low and can be considered to reflect the general background contamination of the environment."--Courtesy/ Paul A. Stewart.

Larsen, Kenneth H., and John H. Dietrich. REDUCTION OF A RAVEN POPULATION ON LAMBING GROUNDS WITH DRC-1339. *J. Wildl. Mgmt.* 34(1): 200-204. Jan. 1970. *WR 138: 7*

[Bur. Sport Fisheries & Wildl., Cornelius, Oreg.] Abstract: Laboratory tests showed the common raven *(Corvus corax)* to be quite susceptible (intravenous LD_{50}=5.6 mg/kg) to the avian toxicant DRC-1339 (3 chloro-p-toluidine hydrochloride). A population of about 200 ravens causing high mortality to newborn lambs and blinding of ewes on a ranch in northwestern Oregon was reduced 90 percent, in 1967, by baiting near sheep carcasses with DRC-1339-treated cubed meat. A population of about 300 common crows *(C. brachyrhynchos)* in the area was reduced in the same proportion. The following year, there were only about 10 ravens and 50 crows in the area, and these were again reduced by baiting. A different treatment, DRC-1339 solution injected into the eyes of sheep carcasses, appeared promising for control of small raven populations. Hazards to golden eagles *(Aquila chrysaëtos)* from DRC-1339 baiting appeared negligible; laboratory tests showed a high LD_{50} in this species (one bird survived 100 mg/kg intravenously) and a strong tendency to regurgitate both solutions and boluses.

Lehner, Philip N., and Alan Egbert. DIELDRIN AND EGGSHELL THICKNESS IN DUCKS. *Nature* 224(5225): 1218-1219, 1 fig. 20 Dec. 1969. *WR 138: 7*

[Utah Coop. Wildl. Res. Unit, Logan.] "Our results suggest: (i) dieldrin at low sublethal doses causes a statistically significant decrease in eggshell thickness in mallard ducks; (ii) both cap and lateral thicknesses decrease; and (iii) because of dieldrin and DDT, other chlorinated hydrocarbons may be similarly suspect in other avian species."

Lockie, J. D., D. A. Ratcliffe, and R. Balharry. BREEDING SUCCESS AND ORGANOCHLORINE RESIDUES IN GOLDEN EAGLES IN WEST SCOTLAND. *J. Appl. Ecol.* 6(3): 381-389. Dec. 1969. *WR 138: 7*

[Univ. Edinburgh, Edinburgh, Scotland.] Conclusion and summary: The proportion of golden eagle eyries in west Scotland successfully rearing young increased from 31% in the period 1963-65 to 69% in the period 1966-68. Concurrently, the level of dieldrin in eagles' eggs fell from 0.86 ppm (1963-65) to 0.34 ppm (1966-68). Eagles in east Scotland, where dieldrin levels in eggs are extremely low, consistently maintained a high breeding success between 1963 and 1968. No other environmental changes are correlated with the improved success of breeding in west Scotland; in particular, the carrion food supply of eagles before and during incubation shows no parallel. We therefore conclude that the earlier hypothesis of Lockie & Ratcliffe (1964) was correct, namely, that contamination by dieldrin ingested with mutton carrion was the cause of a substantial decline in the breeding success of eagles in west Scotland.

Oberheu, John C. INVESTIGATING AND REPORTING INCIDENCE OF WILDLIFE MORTALITY FROM PESTICIDES. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 98-102. 1968 [1969]. *WR 138: 8*
[Bur. Sport Fisheries & Wildl., Atlanta, Ga.]

Peakall, David B. EFFECT OF DDT ON CALCIUM UPTAKE AND VITAMIN D METABOLISM IN BIRDS. *Nature* 224(5225): 1219-1220. 20 Dec. 1969. *WR 138: 8*
[Cornell Univ., Ithaca, N.Y.] "Thus the results clearly show that uptake of calcium from the gastrointestinal tract in the intact animal is not affected by DDT. This finding correlates with the results of the second experiment which shows that *in vitro* metabolism of vitamin D is not increased even though there is a doubling of oestradiol metabolism.... The 'thin eggshell phenomenon' seems therefore to result from alterations in the storage and mobilization of calcium after ingestation, rather than action at the initial step of this process."

WILDLIFE--PARASITES & DISEASES

Becklund, Willard W. TICKS OF VETERINARY SIGNIFICANCE FOUND ON IMPORTS IN THE UNITED STATES. *J. Parasitol.* 54(3): 622-628. June 1968. *WR 138: 8*
[Agr. Res. Service, Beltsville, Md.] Ticks that have been removed from foreign cattle, horses, numerous kinds of zoo animals, animal products and miscellaneous items presented at ports of entry and in some cases within the United States represent 9 genera and 37 species. This study revealed three important points: (1) Most of the exotic ticks found on imports are males; females apparently drop off at foreign quarantine stations and while the imports are en route. (2) Native as well as exotic ticks on imported animals may be vectors of exotic disease. (3) Harmful ticks occur on strange items and abnormal hosts.--From abstr.

Correa-Giron, E. Pablo, Rae Allen, and S. Edward Sulkin. THE INFECTIVITY AND PATHOGENESIS OF RABIESVIRUS ADMINISTERED ORALLY. *Am. J. Epidemiol.* 91(2): 203-215, 4 figs. Feb. 1970. *WR 138: 8*
[Sulkin: Univ. Texas Southwestern Med. School, Dallas.] Five strains of rabiesvirus were tested for their ability to infect mice via the oral route. The CVS strain and three of the four street virus strains produced infection in mice following ingestion of virus laden brain tissue. One street strain isolated from the brown fat of a naturally infected insectivorous bat, was not infective when administered orally.--From abstr.

Lord, Rexford D. VERTEBRATE ECOLOGY IN PUBLIC HEALTH. *Public Health Repts.* 85(2): 105-111. Feb. 1970. *WR 138: 8*
[Natl. Communicable Disease Center, Atlanta, Ga.] Ecologists are investigating zoonotic diseases all over the globe. Today it is possible to foresee the eradication of some diseases in the wild hosts. Ideally, this end would be achieved by mass immunization or treatment of the wild hosts. If these methods cannot be used, however, another possibility is to lower the density of the hosts below the level necessary to maintain the diseases in nature.--From concl.

WILDLIFE--TECHNIQUES

Kuno, Eizi. A NEW METHOD OF SEQUENTIAL SAMPLING TO OBTAIN THE POPULATION ESTIMATES WITH A FIXED LEVEL OF PRECISION. *Res. Population Ecol.* 11(2): 127-136, 3 figs. Dec. 1969. In English with Japanese summ. *WR 138: 8*
[Kyoto Univ., Kyoto, Japan.] Summary: A simple method of sequential sampling is developed which would make it automatically possible to secure, without sampling, a predetermined level of precision for a series of population estimates being required. It appears to have wide application to sampling field populations under various situations since it is simply based upon the relationship of variance to mean for which a comprehensive formula deduced for biological populations from the linearity in the regression of mean crowding on mean density could be adopted. Some problems that may arise in practical application of the method are also discussed.

WILDLIFE--TECHNIQUES--Continued

Seber, G. A. F. THE EFFECTS OF TRAP RESPONSE ON TAG RECAPTURE ESTIMATES. *Biometrics* 26(1): 13-22. Mar. 1970. In English with French summ. *WR 138: 9*
[Auckland Univ., Auckland, New Zealand.] Summary: The effect of varying catchability in a population on the Petersen tag-recapture estimate is discussed. It is found that the usual estimates of variance based on the hypergeometric distribution are still satisfactory even when there is variation in catchability. A regression technique of Marten's, based on a Schnabel census, for detecting variations in catchability is also discussed briefly.

WILDLIFE--MANAGEMENT & RESEARCH, GENERAL

Cowan, I. McT. THE ECOLOGICAL CONCEPT OF PARK MANAGEMENT. *East African Agr. & Forestry J.* 33(spec. issue): 173-177. June 1968. *WR 138: 9*
[Univ. British Columbia, Vancouver, Canada.]

Leopold, A. S. ECOLOGIC OBJECTIVES IN PARK MANAGEMENT. *East African Agr. & Forestry J.* 33(spec. issue): 168-172. June 1968. *WR 138: 9*
[Univ. Calif., Berkeley.]

WILDLIFE--INTRODUCTIONS

Bohl, Wayne H., and Gardiner Bump. SUMMARY OF FOREIGN GAME BIRD LIBERATIONS 1960 TO 1968 AND PROPAGATION 1966 TO 1968. *US F&WS, Spec. Sci. Rept.--Wildl.* no. 130. vi + 61 p. Feb. 1970. *WR 138: 9*
For most of the species experimentally released it is still too early to evaluate results while others have become so successful that hunting has commenced. Hunting has begun in certain states for the Afghan white-winged pheasant, black and gray francolins, and bamboo partridge. The black francolin, Iranian blackneck pheasant cross, and Japanese green pheasant could have been hunted in one state by the mid-1960's except for the limited area involved. Considered as very promising are other game birds including the Korean ringneck, red junglefowl, and the Turkish chukar. Seesee partridge are yet to be tested in numbers in arid southwestern habitats. The Indian sandgrouse is still considered a failure while Reeve's pheasants liberations have been largely discontinued because of lack of success from game farm reared birds. Likewise bamboo partridge production and liberations have been stopped in the Southeast because of lack of success anywhere with major emphasis to be placed on rearing and liberating this bird in the Pacific States.--From abstr.

WILDLIFE--ECONOMIC & OTHER VALUES

Sartz, Richard S. MOUSE DAMAGE TO YOUNG PLANTATIONS IN SOUTHWESTERN WISCONSIN. *J. Forestry* 68(2): 88-89, 1 fig. Feb. 1970. *WR 138: 9*
[Forest Watershed Lab., LaCrosse, Wis.] Abstract: A high-meadow vole [*Microtus p. pennsylvanicus*] population caused serious losses in old-field plantings in southern Wisconsin. Austrian and Scotch pine, Norway spruce, and European larch were preferred coniferous species, with red, white, and jack pines second choices. White pine was not heavily attacked, and white spruce was passed up completely, as reported by others. Mouse population densities apparently varied from one planting to another for reasons that are not clear. Ground vegetation and snow depth did not appear to explain population differences on the experimental forest. No damage or other mouse signs were found on south aspect plantings.

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WILDLIFE--FOOD HABITS & TECHNIQUES

Askemo, Conny. GRANFRÖ SOM FÖDA FÖR RINGDUVA *(COLUMBA PALUMBUS)* OCH STENKNÄCK *(COCCOTHRAUSTES COCCOTHRAUSTES)*. [SPRUCE SEEDS AS FOOD FOR THE WOOD PIGEON AND THE HAWFINCH.] *Vår Fågelvärld* 28: 7-8. 1969. [From Bird-Banding 41(1), 1970. In Swedish with English summ.] *WR 138: 10*

WILDLIFE--PREDATION, CROP DAMAGE, CONTROL

Stubbe, C. ENTWICKLUNG UND ANWENDUNG VON CHEMISCHEN PRÄPARATEN ZUR WILD-SCHADENVERHÜTUNG IN DER DEUTSCHEN DEMOKRATISCHEN REPUBLIK. [DEVELOPMENT AND APPLICATION OF CHEMICAL COMPOUNDS FOR WILDLIFE DAMAGE PREVENTION IN THE GERMAN DEMOCRATIC REPUBLIC.] *Beitr. Jagd- Wildforsch.* (Berlin) 104: 113-127. 1968. [From J. Mammal. 51(1, suppl.), 1970. In German.] *WR 138: 10*

WILDLIFE--REPORTS OF ORGANIZATIONS & REPORTS OF HARVESTS

Saskatchewan. ANNUAL REPORT 1968-1969. SASKATCHEWAN NATURAL RESOURCES. *Saskatchewan Dept. Nat. Resources* (Regina). 49 p., illus. + fold-out map. 1970. *WR 138: 10*

The report of the wildlife branch includes brief descriptions of big game and upland game management, fur management, research, and the hunter safety program.

WETLANDS & WILDLIFE

Chabreck, Robert H. THE RELATION OF CATTLE AND CATTLE GRAZING TO MARSH WILDLIFE AND PLANTS IN LOUISIANA. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 55-58. 1968 [1969]. *WR 138: 10*

[La. Coop. Wildl. Res. Unit, Baton Rouge.] The relation of various game species (blue and snow geese, ducks, snipe, rails, and furbearers) and marsh plants to cattle and cattle grazing.

Hoffmann, L., chairman. PROCEEDINGS OF A TECHNICAL MEETING ON WETLAND CONSERVATION / ANKARA - BURSA - ISTANBUL / 9 TO 16 OCTOBER 1967. *IUCN Publ. New Ser.* no. 12. 273 p., 25 figs. 1968. *WR 138: 10*

Includes the following papers: *Soil and water problems in Turkey from the standpoint of nature conservation*, Naki Üner; *Conservation of natural resources: the example of forest management in Turkey*, Nurettin Türköz; *The theory and practice of conservation*, J. B. Cragg; *Project MAR: its principles, objectives and special significance for the Near and Middle East region*, L. Hoffmann; *The ecological background of land use in Turkey with special reference to wetlands*, Hasan Selcuk; *The over-all problems of wetlands in Turkey, with special reference to use and legislation*, Ahmet Varisligil; *Report of the first IWRB-MAR Mission to Turkey*, Josef Szijj and H. H. Hoekstra; *Notes on some western Anatolian wetlands in spring and summer*, Richard Porter; *Wetlands and wildfowl in south-central Turkey*, Amotz Zahavi; *Observations on the wetland and wildfowl situation in eastern Turkey*, J. Vielliard; *General review of the Lake Manyas Sanctuary and its environment*, Tansu Gürpinar; *Special problems of the Manyas Bird Sanctuary (Manyas Kus Cenneti National Park)*, D. Lea; *Wetlands and wildfowl in Turkey*, Nihat Turan; *A provisional check-list of Turkish wetlands*, C. D. W. Savage, R. F. Porter, and W. H. N. Wilkinson; *The importance of Turkey as a wintering ground for wildfowl*, G. L. Atkinson-Willes; *Problems of Turkey's wetlands and wildfowl: a ten-year perspective*, W. H. N. Wilkinson; *The wildfowl and wetland situation in Iran*, C. D. W. Savage and Eskandar Firouz; *The wildfowl and wetland situation in Afghanistan*, C. D. W. Savage; *The wildfowl and wetland situation in West Pakistan*, C. D. W. Savage; *The wildfowl and wetland situation in Iraq*, C. D. W. Savage; *The wildfowl and wetland situation in the Levant*, C. D. W. Savage; *The hydrobiology of Lake Niriz, Iran*, H. Löffler; *Some notes on the wetlands of the Niriz Basin in S.W. Iran*, Lindon Cornwallis; *Interrelationship of waterfowl breeding and wintering areas in the Central Palaearctic*, Y. U. Isakov and T. P.

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Shevareva; *The status of waterfowl populations breeding in the U.S.S.R. and wintering in S.W. Asia and Africa*, Y. U. Isakov; *Relevance of wildfowl breeding populations of the Barabi Steppe to West Pakistan*, C. D. W. Savage; *Results of the ringing of breeding species at Lake Manyas*, C. Kosswig; *Notes on secondary productivity in the Lake Rezaiyeh ecosystem in Iran*, C. D. W. Savage; *Notes on the economic value of wetlands based on experience in the Netherlands*, M. F. Mörzer Bruijns and V. Westhoff; *Wildfowling in Northern Iran*, C. D. W. Savage; *Wildfowl market hunting in Northern Iran--The present situation*, Eskandar Firouz; *The influence of recreational activities on aquatic biocenoses*, M. F. Mörzer Bruijns; *Methods of protecting and replenishing stocks of wildfowl in wetland areas*, S. Ehrlich and A. G. Simotas; *Experience with nutria in the United States*, Bureau of Sport Fisheries and Wildlife; *Some problems of assessing wildfowl numbers and maintaining wildfowl habitats and stocks*, Salim Ali; *Wildfowl refuges in Asia and the Near East*, C. D. W. Savage; *The Mordab of Pahlavi*, Eskandar Firouz; *A management plan for the Meric Delta*, Günther Müller; *Legislation relating to wildfowl resources in countries of the Middle East*, L. Hoffmann.

Larimer, Edward J. AN INVESTIGATION OF POSSIBILITIES FOR CREATING SALTMARSH IN THE ESTUARIES OF THE ATLANTIC AND GULF COASTS. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 82-88. 1968 [1969]. *WR 138: 11*

Lathwell, D. J., H. F. Mulligan, and D. R. Bouldin. CHEMICAL PROPERTIES, PHYSICAL PROPERTIES AND PLANT GROWTH IN TWENTY ARTIFICIAL WILDLIFE MARSHES. *N.Y. Fish & Game J.* 16(2): 158-183, 2 figs. July 1969. *WR 138: 11*

[Cornell Univ., Ithaca, N.Y.] Abstract: Measurements of physical and chemical characteristics of water and bottom soil were made throughout each season from 1960 to 1967 on 20 artificial marshes to determine factors that influenced the growth of aquatic plants important as food sources for wildlife. Water depth was varied from 1 to 3 feet, and throughout the study greater plant growth was observed in the shallower marshes. Additions of organic matter to the bottom soils resulted in increased plant growth early in the study, but in later years they had little effect. The additions of limestone to this neutral to calcareous soil material had no effect on plant growth. Of the factors measured, extractable iron in the sediment increased at an increasing rate while extractable manganese increased only slightly over the course of the study. Total alkalinity of the water decreased consistently throughout the first six years, but it increased during the last two years of the study. At the conclusion of this stage of the investigation, factors controlling productivity in these marshes were not known with any certainty.

Metzgar, Roy G., and David A. Wharton. PLANNING THE MANAGEMENT OF MARYLAND WETLANDS. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 68-82. 1968 [1969]. *WR 138: 11*

[Md. State Planning Dept., Annapolis.]

Warren, John, and Donald Bandel. POTHOLE BLASTING IN MARYLAND WETLANDS. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 58-68. 1968 [1969]. *WR 138: 11*

[Md. Dept. Game & Inland Fish, Annapolis.] Abstract: Approximately 90 potholes were blasted with ammonium nitrate and fuel oil mixtures on a fresh marsh and a saline marsh in the Chesapeake Bay area of Maryland. Work covered a 3-year period in fresh marshes and one growing season in saline marshes. Number of ANFO charges used per pothole ranged from 1-15 varying in gross amounts per pothole from 20-415 lbs. Detonation was by dynamite using either primacord, cap and fuse or electric caps. Depth of charge holes varied from 8-36 inches. Available data are presented on size and depth of potholes, sloughing of spoil, soil types and plant invasions.

RANGELAND & WILDLIFE

Klein, David R. TUNDRA RANGES NORTH OF THE BOREAL FOREST. *J. Range Mgmt.* 23(1): 8-14, 2 figs. Jan. 1967. *WR 138: 12*

[Alaska Coop. Wildl. Res. Unit, College.] Highlight: Tundra rangelands of Alaska and northern Canada occupy about 200,000 and 900,000 square miles respectively. The tundra supports far lower numbers of large grazers than other natural areas, averaging less than 100 lb per square mile. Forage quality of tundra plants is high because of rapid growth and wide variation in seasonal progression of growth. The native grazers, caribou and muskoxen, have evolved rapid growth rates and selectively feed on the highest quality forage available. Wild populations of caribou and muskoxen appear to offer the best potential for conversion of tundra vegetation into commodities utilizable by man.

FORESTLAND--FORESTRY & ECOLOGY

Dzieciołowski, Ryszard. WINTER BIOMASS OF BROWSE FOR HERBIVOROUS ANIMALS IN FOREST HABITATS. *Ekologia Polska--Ser. A* 17(20): 361-371. 1969. In English with Polish summ. *WR 138: 12*

[Forest Res. Inst., Warsaw, Poland.] Abstract: Winter biomass of browse (last year growth of shoots of trees and shrubs within the zone from snow cover level up to the height of 2 m) was estimated in seven forest associations of lowland Poland. Within each association browse was clipped on 10 cross shaped transects with the area of 19 m^2. It was found that the associations might be divided into two groups differing in a statistically significant way in respect to the biomass of browse. Two associations, namely *Calamagrosti villosae-Pinetum* and *Fago-Quercetum trientaletosum* provide the most abundant supply of potential food for game animals in wintertime.

FORESTLAND--MANAGEMENT FOR & DAMAGE BY WILDLIFE

Stransky, John J., and Lowell K. Halls. SMALL FOREST HOLDINGS COULD BE COMBINED FOR HUNTING LEASES. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 125-128. 1968 [1969]. *WR 138: 12*

[Southern Forest Expt. Sta., Nacogdoches, Texas.] Abstract: Most forest land acreage in the South is in small holdings. Much-needed hunting land, and income for rural landowners, could be provided by combining small forest holdings into large units and leasing the hunting rights.

CONTROL OF VEGETATION WITH HERBICIDES, ETC.

Anderson, Allen E. 2,4-D, SAGEBRUSH, AND MULE DEER-CATTLE USE OF UPPER WINTER RANGE. *Colo. Div. Game, Fish & Parks Spec. Rept.* no. 21. iv + 21 p., 9 figs. July 1969. Price $1.00. *WR 138: 12*

Eight, disjunct, sagebrush *(Artemisia tridentata* spp.*)* communities totaling 731 acres within a 2,884-acre mountain shrub-conifer complex were aerially sprayed with 2,4-dichlorophenoxyacetic acid (2,4-D) to increase natural grass production for cattle. This heterogeneous mixture of seven habitats comprises upper winter and lower summer range for mule deer *(Odocoileus hemionus)* and fall-spring range for cattle. Sample counts of fecal groups and droppings showed a significant post-treatment decline in deer use of completely, partially, and untreated sagebrush habitats, and of the entire study area. Mule deer used oak *(Quercus gambellii)* dominated habitats significantly more than the three sagebrush and the coniferous-dominated habitats both prior to and following treatment.--From abstr.

Schuster, Joseph L., project leader. NOXIOUS BRUSH AND WEED CONTROL RESEARCH REPORTS 1969. *Intern. Center Arid & Semi-Arid Land Studies, Spec. Rept.* no. 33. 91 p., illus. 31 Dec. 1969. *WR 138: 13*
[Texas Technol. Univ., Lubbock.] Twenty-one papers most of which deal primarily with vegetation control. However, the following four concern wildlife directly: *The food of white-tailed deer on the rolling plains*, Donald A. Klebenow; *Differential habitat use by white-tailed deer in west Texas*, Donald A. Klebenow and Gene W. Darr; *The summer ecology of quail in the Texas rolling plains*, John E. Tharp and Donald A. Klebenow; and *Impact of rabbits on resprouts of mesquite*, Joe Bob Watson and Henry A. Wright.

MAMMALS--GENERAL

Butler, B. Robert. MORE INFORMATION ON THE FROZEN GROUND FEATURES AND FURTHER INTERPRETATION OF THE SMALL MAMMAL SEQUENCE AT THE WASDEN SITE (OWL CAVE), BONNEVILLE COUNTY, IDAHO. *Tebiwa* 12(1): 58-63. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 13*

Houseknecht, Clyde R., and Richard A. Huempfner. A RED FOX-STRIPED SKUNK ENCOUNTER. *Am. Midland Nat.* 83(1): 304-306. Jan. 1970. *WR 138: 13*
[Univ. Minn., Minneapolis.] Abstract: Results of an encounter between a red fox *(Vulpes vulpes)* and five radio-marked striped skunks *(Mephitis mephitis)* are described. The data suggest that the distance traveled by skunks while searching for a den is inversely proportional to the number of dens previously utilized.

Kavanau, J. Lee. INFLUENCES OF LIGHT ON ACTIVITY OF SMALL MAMMALS. *Ecology* 50(4): 548-557, 8 figs. Summer 1969. *WR 138: 13*
[Univ. Calif., Los Angeles.] Weasels *(Mustela rixosa)* were stimulated to activity by artificial dusk and inhibited by artificial dawn but not by a sudden onset of bright light. Chipmunks *(Tamias striatus)* were stimulated by artificial dawn when the length of the daylight period was comparable to that in the wild. Chipmunks ceased activity several hours before dusk. An early dusk slowed their activity.--From abstr. Courtesy/ Paul A. Stewart.

Lehmann, Ernst von. EINE KLEINSÄUGERAUFSAMMLUNG VOM ETRUSKISCHEN APENNIN UND DEN MONTI PICENTINI (KAMPANISCHER APENNIN). [A COLLECTION OF SMALL MAMMALS FROM THE ETRUSCAN APPENINES AND MONTI PICENTINI (CAMPANIAN APPENNINES).] *Lab. Zool. Appl. Caccia* 5(2): 39-46. Nov. 1969. In German with Italian and English summ. *WR 138: 13*
[Mus. Alexander Koenig, 150-164 Adenauerallee, Bonn, Germany.]

Sadleir, R. M. F. S. THE ROLE OF NUTRITION IN THE REPRODUCTION OF WILD MAMMALS. *J. Reproduction Fertility* suppl. 6: 39-48. Feb. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 13*

Simkin, G. N. [ACOUSTIC SIGNAL AND SYSTEMS OF SIGNALISATION IN SMALL MAMMALS.] *Zool. Zhur.* 48(4): 579-586. Apr. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Russian with English summ.] *WR 138: 13*

MAMMALS--TECHNIQUES

Hansson, Lennart. HOME RANGE, POPULATION STRUCTURE AND DENSITY ESTIMATES AT REMOVAL CATCHES WITH EDGE EFFECT. *Acta Theriologica* 14(11): 153-160, 2 figs. 30 Aug. 1969. In English with Polish summ. *WR 138: 13*
[Univ. Lund, Lund, Sweden.] Abstract: By a simple formula the distance and area is calculated, from which small mammals are drawn to a trap grid with edge effect. This range estimate will increase during successive removal days but a certain plateau in this value will be equal to the mean home range radius. Structure parameters should be evaluated from animals removed until this plateau [is reached]. From examinations of the catches in a Standard-Minimum grid it is suggested that there should be a shorter distance between trap stations, a longer trapping period and possibly more traps in the outer belts.

Klevezal, G. A., and S. E. Kleinenberg. AGE DETERMINATION OF MAMMALS FROM ANNUAL LAYERS IN TEETH AND BONES. *Published for the U.S. Department of the Interior and the National Science Foundation, Washington, D.C., by the Israel Program for Scientific Translations* (Jerusalem). TT 69-55033. iii + 128 p., 66 figs. 1969. Russian original published by Izdatel'sto "Nauka" (Moscow) in 1967. [Translation available from U.S. Dept. Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.] *WR 138: 14*

The morphological basis of this technique, details of application, and generalized results on age determination of the representatives of all mammalian orders of the USSR are described.

Litvin, V. Yu., and I. L. Kulik. [A SEARCH OF STRAINS EXCRETED FROM THE ANIMAL WITH FAECES FOR LABELLING MICE AND VOLES.] *Zool. Zhur.* 48(6): 920-924. June 1969. [From J. Mammal. 51(1, suppl.), 1970. In Russian with English summ.] *WR 138: 14*

Marsboom, R. ON THE PHARMACOLOGY OF AZAPERONE, A NEUROLEPTIC USED FOR THE RESTRAINT OF WILD ANIMALS. *Acta Zool. & Pathol. Antverpiensia* no. 48. p. 155-161. 1969. In English with French summ. *WR 138: 14*

[Janssen Pharmaceutica, Beerse, Belgium.]

Patric, Earl F. BAIT PREFERENCE OF SMALL MAMMALS. *J. Mammal.* 51(1): 179-182. Feb. 1970. *WR 138: 14*

[Univ. R.I., Kingston.]

Petticrew, B. G., and R. M. F. S. Sadleir. THE USE OF INDEX TRAP LINES TO ESTIMATE POPULATION NUMBERS OF DEERMICE *(PEROMYSCUS MANICULATUS)* IN A FOREST ENVIRONMENT IN BRITISH COLUMBIA. *Canadian J. Zool.* 48(2): 385-389, 1 fig. Mar. 1970. *WR 138: 14*

[Simon Fraser Univ., Burnaby, British Columbia, Canada.] Abstract: Monthly live trapping of three 1-hectare grids in differing forest habitats was carried out over an 8-month period. Immediately after 2 nights of trapping on each grid a central index line was trapped for a further 2 nights. The total capture numbers, numbers of males, and numbers of females of deermice *(Peromyscus maniculatus)* on the index line correlated significantly with the same parameters on the grid. In addition, survival rates and body weights were almost identical and similar representation of other small mammal species was determined by both arrangements of traps. It is suggested that the index line may be a more efficient method of sampling small mammal populations.

Pienaar, U. de V. THE USE OF DRUGS IN THE FIELD IMMOBILIZATION AND RESTRAINT OF LARGE WILD MAMMALS IN SOUTH AFRICAN NATIONAL PARKS. *Acta Zool. & Pathol. Antverpiensia* no. 48. p. 163-177, 4 figs. 1969. In English. *WR 138: 14*

[Kruger Natl. Park, Skukuza, South Africa.]

Pucek, Zdzisław. TRAP RESPONSE AND ESTIMATION OF NUMBERS OF SHREWS IN REMOVAL CATCHES. *Acta Theriologica* 14(28): 403-426, 7 figs. 15 Dec. 1969. In English with Polish summ. *WR 138: 14*

[Mammals Res. Inst., Białowieża, Poland.] Trap response of shrews and the relative efficiency of three types of traps (pitfalls, live and snap traps) in catching small mammals were studied. Material was obtained from short and long-term trappings and from removal catches. Estimates of the number of shrews from linear regression equations and from truncated distributions differed only slightly. Estimates of population size of shrews based on data from pitfalls were more than three times higher than those from snap traps, during the summer, but they became similar during late autumn. Data obtained show that differential trap preference of small mammals influence trapping success and trappability related estimations.--From summ.

MAMMALS--TECHNIQUES--Continued

Van Citters, Robert L., and Dean L. Franklin. CARDIOVASCULAR RESEARCH IN WILD ANIMALS: TELEMETRY TECHNIQUES AND APPLICATIONS. *Acta Zool. & Pathol. Antverpiensia* no. 48. p. 243-263. 1969. In English. *WR 138: 15*
[Univ. Wash., Seattle.]

Watts, C. H. S. CORRECTION FOR BIAS IN MOVEMENTS OF SMALL ANIMALS AS REVEALED BY TRAPPING. *J. Mammal.* 51(1): 194-196. Feb. 1970. *WR 138: 15*
[Inst. Med. & Vet. Sci., Adelaide, South Australia.]

MAMMALS--FAUNAS & MANUALS

Booth, Ernest Sheldon. MAMMALS OF SOUTHERN CALIFORNIA. *Univ. Calif. Press* (Berkeley). 99 p. 1968. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 15*

Chesemore, David L. NOTES ON THE MAMMALS OF SOUTHERN NEPAL. *J. Mammal.* 51 (1): 162-166. Feb. 1970. *WR 138: 15*
[Okla. Coop. Wildl. Res. Unit, Stillwater.] Geographic zones and species list.

Clark, Tim W., and David D. Skryja. FURTHER NOTES ON THE MAMMALS OF BLACK MESA REGION, OKLAHOMA. *Proc. Okla. Acad. Sci.* 48: 27-29. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 15*

Daciuk, Juan. [THE FAUNA OF LAGUNA BLANCA NATIONAL PARK (A ZOOECOLOGICAL PRELIMINARY STUDY).] *An. Parques Nac.* (Buenos Aires) 11(2A): 225-302. 1968. [From J. Mammal. 51(1, suppl.), 1970. In Spanish with English summ.] *WR 138: 15*

Pinto da Silveira, Estanislau Kostka. NOTAS SÔBRE A HISTORIA NATURAL DO TAMANDUÁ MIRIM *(TAMANDUA TETRADACTYLA CHIRIQUENSIS* J. A. ALLEN 1904, MYRMECOPHAGIDAE), COM REFERÊNCIAS Á FAUNA DO ISTMO DO PANAMÁ. [NOTES ON THE NATURAL HISTORY OF THE LESSER ANTEATER *(TAMANDUA TETRADACTYLA CHIRIQUENSIS)* WITH REFERENCE TO THE FAUNA OF THE ISTHMUS OF PANAMA.] *Vellozia* no. 6. p. 9-31, [14] figs. 1968. In Portuguese with English summ. *WR 138: 15*
[Centro de Conservacão da Natureza, Rio de Janeiro, Brazil.] In addition to natural history data on the lesser anteater, there is a general account of the fauna of Barro Colorado Island, Panama Canal Zone.

Reimers, N. F., G. A. Voronov, E. E. Zagorodski, and A. V. Alina. [INSECTIVORES AND RODENTS OF THE SAKHALIN AND KURIL ISLANDS.] *Writings Ecol. Theriol.* (Perm) 61(3): 35-99. 1968. [From J. Mammal. 51(1, suppl.), 1970. In Russian.] *WR 138: 15*

Smithers, Reay H. N. THE MAMMALS OF RHODESIA, ZAMBIA AND MALAWI. *Collins* (London). 159 p., illus. + 11 color pls. 1966. Price 25 shillings. *WR 138: 15*
Descriptions of the more common animals of the area, including notes on their distribution, habitat, habits, diets, breeding, and general information. In addition to distribution maps and track drawings for most species there are colored illustrations of each of the 96 species treated.

Spillett, J. Juan. A REPORT ON WILD LIFE SURVEYS IN SOUTH AND WEST INDIA. NOVEMBER-DECEMBER, 1966. *J. Bombay Nat. Hist. Soc.* 65(1): 1-46. Apr. 1968. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 15*

Spillett, J. Juan. A REPORT ON WILD LIFE SURVEYS IN SOUTH AND WEST INDIA. NOVEMBER-DECEMBER, 1966. *J. Bombay Nat. Hist. Soc.* 65(2): 296-325. Aug. 1968. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 15*

Thesen, Hjalmar. ANIMALS OF THE KNYSNA FOREST. *Eastern Cape Naturalist* 36: 8-11. Mar. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 15*

Van Peenen, P. F. D., P. F. Ryan, and R. H. Light. PRELIMINARY IDENTIFICATION MANUAL FOR MAMMALS OF SOUTH VIETNAM. *U.S. Natl. Mus., Smithsonian Inst.* vi + 310 p., illus. 1969. *WR 138: 16*

[Natl. Naval Med. Center, Bethesda, Md.] "This Preliminary Smithsonian Identification Manual was written so that field medical personnel might identify species of wild mammals occurring in South Vietnam. Most of the text contains descriptions, distributions, and other data of value for identifying mammals. At present, there is not enough available information to reliably discuss mammalian ecology, behavior, reproduction or development. All species of land mammals, except domestic, for which there are valid collection records in South Vietnam are included; as well as some which will probably be collected sooner or later. The mammalian fauna of South Vietnam has affinities with that of the Malaysian, Indo-Burmese, and Chinese subregions, and includes many species which also occur in Cambodia, Laos, North Vietnam, and Thailand."

Weller, Milton W., and William S. Blagen. A CATALOGUE OF THE IOWA STATE UNIVERSITY COLLECTION OF IOWA MAMMALS. *Iowa State J. Sci.* 44(3): 279-295, 3 figs. Feb. 1970. *WR 138: 16*

The mammalian fauna (59 spp.) of Iowa represents a cross-section of mammals derived from northern, eastern and western faunal elements, however, most species are statewide in distribution.--From abstr.

MAMMALS--POPULATIONS, HOME RANGES, COMMUNITIES

Linkola, Pentti, and Arvo Myllymäki. [THE INFLUENCE OF THE FLUCTUATION IN NUMBERS OF SMALL RODENTS ON THE BREEDING SUCCESS OF SIX PREDATORY BIRDS IN HÄME, SOUTH FINLAND.] *Ornis Fennica* 48(2): 45-78. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Finnish with English summ.] *WR 138: 16*

Mambetzhumaev, A. M. [ON THE VARIATION OF NUMBERS AND FOOD RELATIONS OF HOOFED ANIMALS AND YELLOW MARMOTS ON BARSA-KELMES ISLAND.] *Uzbekskii Biol. Zhur.* 1: 44-48. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Russian with English summ.] *WR 138: 16*

Schnapp, B. THE FAUNA OF MICROMAMMALS FROM VALUL-LUI-TRAIAN (DOBROUDJA) IN THE YEARS 1958-1962, ACCORDING TO *ASIO OTUS* (L.) PELLETS. *"Grigore Antipa"* 8 (2): 1045-1063. 1968. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 16*

MAMMALS--PARASITES & DISEASES

Appleby, E. C. TUMOURS IN CAPTIVE WILD ANIMALS: SOME OBSERVATIONS AND COMPARISONS. *Acta Zool. & Pathol. Antverpiensia* no. 48. p. 77-92. 1969. In English. *WR 138: 16*

[Royal Veterinary Coll., London, England.]

Becklund, Willard W., and Martha L. Walker. TAXONOMY, HOSTS, AND GEOGRAPHIC DISTRIBUTION OF THE *SETARIA* (NEMATODA: FILARIOIDEA) IN THE UNITED STATES AND CANADA. *J. Parasitol.* 55(2): 359-368, 33 figs. Apr. 1969. *WR 138: 16*

[Agr. Res. Center, Beltsville, Md.] Hosts: horse, mule, burro, cow, pronghorn, bison, moose, bighorn, caribou, white-tailed deer, and mule deer.

Bowers, J. Hoyt, Richard O. Hayes, and Thomas B. Hughes. STUDIES ON THE ROLE OF MAMMALS IN THE NATURAL HISTORY OF WESTERN ENCEPHALITIS IN HALE COUNTY, TEXAS. *J. Med. Entomol.* 6(2): 175-178. May 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 16*

Condy, J. B. FOOT AND MOUTH DISEASE IN RHODESIAN WILDLIFE. *Rhodesia Sci. News* 3(8): 231, illus. Aug. 1969. *WR 138: 16*

In a serological survey of more than 1,000 samples, it was revealed that the following species of ungulates had levels of antibodies suggesting previous experience of foot and mouth disease: buffalo, kudu, warthog, wildebeeste, impala, duiker, bushbuck, grysbuck, reedbuck, roan, and eland.

Durette-Desset, Marie-Claude. HELMINTHES DE MARSUPIAUX AMERICAINS TRICHOSTRONGYLOIDEA. [HELMINTHS OF AMERICAN MARSUPIALS--TRICHOSTRONGYLOIDES.] *Bull. Soc. Zool. France* 93(4): 581-594. Nov. 1968. [From J. Mammal. 51(1, suppl.), 1970. In French.] *WR 138: 17*

Edler, Anders. ECTOPARASITIC MITES (ACARINA: PARASITIFORMES) FROM SMALL MAMMALS FROM THE TÄRNASJÖ AND AMMARNÄS AREAS IN SWEDISH LAPLAND. *Entomol. Tidskr.* (Lund) 89(3-4): 269-277. 1968. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 17*

Iversen, J. O., J. Spalatin, C. E. O. Fraser, R. P. Hanson, and D. T. Berman. THE SUSCEPTIBILITY OF MUSKRATS AND SNOWSHOE HARES TO EXPERIMENTAL INFECTION WITH A CHLAMYDIAL AGENT. *Canadian J. Comp. Med.* 34(1): 80-89, 4 figs. Jan. 1970. In English with French abstr. *WR 138: 17*
[Sonoma State Coll., Rohnert Park, Calif.] Muskrats *(Ondatra zibethicus)* and snowshoe hares *(Lepus americanus)* were exposed experimentally by various routes to a chlamydial agent (designated strain M56) originally isolated during a die-off of muskrats and snowshoe hares which occurred in Saskatchewan during 1961. Both species were susceptible to experimental infection. Whereas M56 was highly lethal for snowshoe hares (18 deaths/19 exposed), it was less virulent for muskrats (6 deaths/20 exposed).--From abstr.

Kotrlý, A. VZTAH CIZOPASNÍKŮ SPÁRKATÉ ZVĚŘE A DOMÁCÍCH ZVÍŘAT. [THE MUTUAL RELATION OF THE PARASITES OF UNGULATE GAME AND DOMESTIC ANIMALS.] *Veterinární Medicína* 12(40): 745-752. 1967. In Czech with Russian and English summ. *WR 138: 17*

Martin, Russell J., Paul R. Schnurrenberger, Ferron L. Andersen, and Chao-Kuang Hsu. PREVALENCE OF *TRICHINELLA SPIRALIS* IN WILD ANIMALS ON TWO ILLINOIS SWINE FARMS. *J. Parasitol.* 54(1): 108-111. Feb. 1968. *WR 138: 17*
[Ill. Dept. Public Health, Springfield.]

Solomon, Gene B., and George S. Warner. *TRICHINELLA SPIRALIS* IN MAMMALS AT MOUNTAIN LAKE, VIRGINIA. *J. Parasitol.* 55(4): 730-732. Aug. 1969. *WR 138: 17*
[Frostburg State Coll., Frostburg, Md.] Infected animals in survey included opossum, spotted skunk, and longtail weasel.

Zajicek, Dalibor, and Maida Mauri Mendez. HEMOPARÁSITOS DE ALGUNOS ANIMALES DE CUBA. [HEMOPARASITES OF SOME CUBAN ANIMALS.] *Poeyana Ser. A* no. 66. p. 1-10, [5] figs. Nov. 1969. *WR 138: 17*
[Inst. Parasitol., Czechoslovak Acad. Sci.]

SHREWS, MOLES, BATS

Aidley, D. J. ECHO INTENSITY IN RANGE ESTIMATION BY BATS. *Nature* 224(5226): 1330-1331. 27 Dec. 1969. *WR 138: 17*
[Univ. East Anglia, Norwich, England.] "There is little reason to suppose that bats use only one of the available methods of estimating the range of objects."

Bradbury, Jack W. THE USE OF VISION BY THE LITTLE BROWN BAT, *MYOTIS LUCIFUGUS*, UNDER CONTROLLED CONDITIONS. *Animal Behaviour* 17(3): 480-485. Aug. 1969. *WR 138: 17*
[Cornell Univ., Ithaca, N.Y.]

David, A. CAN YOUNG BATS COMMUNICATE WITH THEIR PARENTS AT A DISTANCE? *J. Bombay Nat. Hist. Soc.* 65(1): 210. Apr. 1968. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 17*

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Davis, Betty S. *TRYPANOSOMA (MEGARTRYPANUM) HOAREI* SP. NOV. (PROTOZOA: TRYPANOSOMATIDAE) FROM SHREWS OF THE GENUS *SOREX* IN CALIFORNIA. *Parasitology* 59(2): 469-491, 67 figs. May 1969. *WR 138: 18*
[Univ. Calif., Carmel Valley.]

Davis, David E., and Frank Peek. LITTER SIZE OF THE STAR-NOSED MOLE *(CONDYLURA CRISTATA)*. *J. Mammal.* 51(1): 156. Feb. 1970. *WR 138: 18*
[N.C. State Univ., Raleigh.]

Davis, Russell. CARRYING OF YOUNG BY FLYING FEMALE NORTH AMERICAN BATS. *Am. Midland Nat.* 83(1): 186-196. Jan. 1970. *WR 138: 18*
[Univ. Ariz., Tucson.] Evidence presently available is insufficient to prove that "carrying of young while foraging" occurs in any North American species, and such behavior is thought not to take place in several. The author strongly suspects that this is not done by any insectivorous bats.--From abstr.

Davis, Wayne H., and Roger W. Barbour. HOMING IN BLINDED BATS *(MYOTIS SODALIS)*. *J. Mammal.* 51(1): 182-184. Feb. 1970. *WR 138: 18*
[Univ. Ky., Lexington.]

Davis, William B. THE LARGE FRUIT BATS (GENUS *ARTIBEUS*) OF MIDDLE AMERICA, WITH A REVIEW OF THE *ARTIBEUS JAMAICENSIS* COMPLEX. *J. Mammal.* 51(1): 105-122, 5 figs. Feb. 1970. *WR 138: 18*
[Texas A&M Univ., College Station.] Useful characters of identification of Middle American representatives of *Artibeus inopinatus, A. hirsutus, A. jamaicensis,* and *A. lituratus* are discussed and a synoptic key to the four species is presented.--From abstr.

Davis, William B. A REVIEW OF THE SMALL FRUIT BATS (GENUS *ARTIBEUS*) OF MIDDLE AMERICA. PART II. *Southwestern Nat.* 14(4): 389-402, 2 figs. 16 Feb. 1970. *WR 138: 18*
[Texas A&M Univ., College Station.]

Dinale, Giovanni. STUDI SUI CHIROTTERI ITALIANI: VII--SUL RAGGIUNGIMENTO DELLA MATURITÀ SESSUALE NEI CHIROTTERI EUROPEI ED IN PARTICOLARE NEI RHINOLOPHIDAE. [STUDIES OF THE CHIROPTERA OF ITALY: VII. ON THE ATTAINMENT OF SEXUAL MATURITY IN EUROPEAN BATS AND IN RHINOLOPHIDAE IN PARTICULAR.] *Arch. Zool. Italiano* 53: 51-71. 1968. [From J. Mammal. 51(1, suppl.), 1970. In Italian with English summ.] *WR 138: 18*

Easterla, David A. FIRST RECORDS OF THE SPOTTED BAT IN TEXAS AND NOTES ON ITS NATURAL HISTORY. *Am. Midland Nat.* 83(1): 306-308. Jan. 1970. *WR 138: 18*
[Northwest Mo. State Coll., Maryville.] Abstract: During August of 1967, two adult female spotted bats *(Euderma maculatum)* were mist-netted at Big Bend National Park, Texas. These are the first Texas specimens and represent a southeasterly range extension of 324 miles (520 km). The conditions encountered at this site indicate that *Euderma* is a cliff-roosting species and not tree-dwelling. Additional life history observations are noted.

Funaioli, Ugo, and Benedetto Lanza. ON SOME BATS FROM SOMALIA. *Monitore Zool. Italiano* 2(suppl.): 199-202. 1968. [From J. Mammal. 51(1, suppl.), 1970. In English with Italian summ.] *WR 138: 18*

Górecki, Andrzej, and Lubomir Christov. METABOLIC RATE OF THE LESSER MOLE RAT. *Acta Theriologica* 14(30): 441-448, 2 figs. 15 Dec. 1969. In English with Polish summ. *WR 138: 18*
[Jagiellonian Univ., Kraków, Poland.] *"Spalax leucodon."*

Heldmaier, Gerhard. [THERMOGENESIS OF THE BAT *(MYOTIS MYOTIS* BORKH.) DURING AROUSAL FROM HIBERNATION.] *Z. Vergleichende Physiol.* (Berlin) 63(1): 59-84. May 1969. [From J. Mammal. 51(1, suppl.), 1970. In German with English summ.] *WR 138: 18*

Imaizumi, Yoshiharu. [REPRODUCTION IN THE JAPANESE SHREW MOLE IN NIGIATA PREF., HONSHU.] *J. Mammal. Soc. Japan* (Tokyo) 4(3): 81-86. Mar. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Japanese with English summ.] *WR 138: 19*

Lim, Boo Liat. FOOD HABITS AND BREEDING CYCLE OF THE MALAYSIAN FRUIT-EATING BAT, *CYNOPTERUS BRACHYOTIS*. *J. Mammal.* 51(1): 174-177, 1 fig. Feb. 1970. *WR 138: 19*
[Inst. Med. Res., Kuala Lumpur, Malaysia.]

Marx, Hymen, and Thomas S. Olechowski. FEAE'S VIPER AND THE COMMON GRAY SHREW: A DISTRIBUTION NOTE ON PREDATOR AND PREY. *J. Mammal.* 51(1): 205. Feb. 1970. *WR 138: 19*
[Field Mus. Nat. Hist., Chicago, Ill.] *"Azemiops feae* and *Crocidura attenuata."*

Miyao, Takeo, and Motomi Morozumi. [NOTES ON THE EMBRYO-SIZE AND THE LITTER-SIZE IN JAPANESE NATIVE BATS (I).] *J. Mammal. Soc. Japan* (Tokyo) 4(3): 87-92. Mar. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Japanese with English summ.] *WR 138: 19*

Miyao, Takeo, Tetsuro Morozumi, and Motomi Morozumi. [MIZURA MOLE *(EUROSCAPTOR MIZURA)*, RECENTLY OBTAINED ON MT. YATSUGATAKE, HONSHU.] *J. Mammal. Soc. Japan* (Tokyo) 4(2): 57. June 1968. [From J. Mammal. 51(1, suppl.), 1970. In Japanese.] *WR 138: 19*

Myrcha, Andrzej. SEASONAL CHANGES IN CALORIC VALUE, BODY WATER AND FAT IN SOME SHREWS. *Acta Theriologica* 14(16): 211-227, 5 figs. 30 Aug. 1969. In English with Polish summ. *WR 138: 19*
[Inst. Ecol., Polish Acad. Sci., Warsaw, Nowy Świat 72, Poland.] *"Sorex araneus, S. minutus* and *Neomys fodiens."*

O'Farrell, Michael J., and W. Glen Bradley. ACTIVITY PATTERNS OF BATS OVER A DESERT SPRING. *J. Mammal.* 51(1): 18-26, 3 figs. Feb. 1970. *WR 138: 19*
[Univ. Nev., Las Vegas.] Abstract: Bats were netted at a desert spring in southern Nevada for a total of 70 nights covering each month of the year. Two species, *Pipistrellus hesperus* and *Myotis californicus*, were active throughout the year with peaks of seasonal activity during the warmer months. *Antrozous pallidus* was a major factor affecting seasonal and nightly activity with more bats being netted at higher temperatures. However, both *M. californicus* and *P. hesperus* were active at air temperatures between -8° and 31°C. During the warmer months, when air temperatures remained above 15°C for the entire night, both species sustained activity throughout much of the night, but in winter months, they were active only shortly after dusk and activity ceased when air temperatures dropped. Evidence for foraging and insect activity during the winter is presented. The hypothesis of continued year-round activity of bats in warmer areas of the southwest is presented as an alternative to hibernation or migration.

Okhotina, M. V. [SOME DATA ON ECOLOGY OF *SOREX (OGNEVIA) MIRABILIS* OGNEV, 1937.] *Acta Theriologica* 14(20): 273-284, 3 figs. 30 Aug. 1969. In Russian with Polish and English summ. *WR 138: 19*
[Biol. & Agr. Inst., Vladivostok, USSR.]

Simmons, James A. ACOUSTIC RADIATION PATTERNS FOR THE ECHOLOCATING BATS *CHILONYCTERIS RUBIGINOSA* AND *EPTESICUS FUSCUS*. *J. Acoustical Soc. Am.* 46(4): 1054-1056. Oct. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 19*

Suga, N. ECHO-LOCATION AND EVOKED POTENTIALS OF BATS AFTER ABLATION OF INFERIOR COLLICULUS. *J. Physiol.* 203(3): 707-728. Aug. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 19*

Suga, N. ECHO-LOCATION OF BATS AFTER ABLATION OF AUDITORY CORTEX. *J. Physiol.* 203(3): 729-739. Aug. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 19*

Suthers, Roderick, Julia Chase, and Barbara Braford. VISUAL FORM DISCRIMINATION BY ECHOLOCATING BATS. *Biol. Bull.* 137(3): 535-546, 6 figs. Dec. 1969. *WR 138: 20*
[Ind. Univ., Bloomington.] Summary: Two species of echolocating Microchiroptera were behaviorally conditioned to visually discriminate between various pairs of simple, equal area patterns presented simultaneously as silhouettes against a diffusely trans-illuminated background. These were *Carollia perspicillata* (frugivorous) and *Anoura geoffroyi* (nectivorous). Data suggest that visual form discrimination in bats such as *Anoura geoffroyi* is comparable or superior to that demonstrated in pigmented laboratory rats. Pattern vision may supplement or replace acoustic orientation in the detection of relatively large distant objects where the propagation losses of ultrasonic cries seriously reduce the echo intensity. Vision may be an important aid to navigation of bats on feeding or migratory flights.

Topál, György. DENEVÉREK. [CHIROPTERA]. *Magyarország Állatvilága: Fauna Hungariae* 22(2): 1-81. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Hungarian.] *WR 138: 20*

Villa, B. ETHOLOGY AND ECOLOGY OF VAMPIRE BATS. *Intern. Union Conserv. Nat. Publ., New Ser.* 13: 104-110. 1968. In: (Davis, Wayne H., compiler. CHIROPTERAN BIBLIOGRAPHY, from Bat Research News, 1965-1969. p. 56. [1970.]). *WR 138: 20*

Watson, A. OBSERVING THE NATURAL BEHAVIOUR OF BATS IN FLIGHT. EXPERIENCES IN BRITAIN AND FINLAND. *Stud. Speleol.* 1: 100-105. 1965. In: (Davis, Wayne H., compiler. CHIROPTERAN BIBLIOGRAPHY, from Bat Research News, 1965-1969. p. 57. [1970.]). *WR 138: 20*

Weber, Neil S., and James S. Findley. WARM-SEASON CHANGES IN FAT CONTENT OF *EPTESICUS FUSCUS*. *J. Mammal.* 51(1): 160-162, 2 figs. Feb. 1970. *WR 138: 20*
[Univ. N. Mex., Albuquerque.]

Wilson, Don E. AN UNUSUAL ROOST OF *ARTIBEUS CINEREUS WATSONI*. *J. Mammal.* 51(1): 204-205. Feb. 1970. *WR 138: 20*
[Univ. N. Mex., Albuquerque.] "A suspended cardboard box."

Wilson, Don E., and Edwin L. Tyson. LONGEVITY RECORDS FOR *ARTIBEUS JAMAICENSIS* AND *MYOTIS NIGRICANS*. *J. Mammal.* 51(1): 203. Feb. 1970. *WR 138: 20*
[Univ. N. Mex., Albuquerque.] Seven years for each species.

RABBITS & PIKAS

Berg, Edward, and Robert D. Beck. POSSIBLE ROLE OF A SEX FACTOR IN RABBIT HOSTS NATURALLY INFECTED WITH *TAENIA PISIFORMIS CYSTICERCI*. *J. Parasitol.* 54 (6): 1252-1253. Dec. 1968. *WR 138: 20*
[State Univ. N.Y., Albany.]

Bergengren, Arne. ON GENETICS, EVOLUTION AND HISTORY OF DISTRIBUTION OF THE HEATH-HARE, A DISTINCT POPULATION OF THE ARCTIC HARE, *LEPUS TIMIDUS* LIN. *Viltrevy* 6(5): 381-460, 21 figs. 1969. In English with Swedish summ. *WR 138: 20*

Dunsmore, J. D., and M. L. Dudzinski. RELATIONSHIP OF NUMBERS OF NEMATODE PARASITES IN WILD RABBITS, *ORYCTOLAGUS CUNICULUS* (L.), TO HOST SEX, AGE, AND SEASON. *J. Parasitol.* 54(3): 462-474, 8 figs. June 1968. *WR 138: 20*
[CSIRO, Canberra, Australia.]

Farlow, Joseph E., Edward C. Burns, and John D. Newsom. SEASONAL DISTRIBUTION OF SOME ARTHROPOD PARASITES OF RABBITS IN LOUISIANA. *J. Med. Entomol.* 6(2): 172-174. May 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 20*

Flux, J. E. C. CURRENT WORK ON THE REPRODUCTION OF THE AFRICAN HARE, *LEPUS CAPENSIS* L., IN KENYA. *J. Reproduction Fertility* suppl. 6: 225-227. Feb. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 21*

Pelton, Michael R. FLUCTUATIONS IN TESTICULAR CONDITION OF COTTONTAIL RABBITS IN GEORGIA. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 198-202, 3 figs. 1968 [1969]. *WR 138: 21*
[Univ. Tenn., Knoxville.] The data revealed that weight and volume were more sensitive indicators of testes condition than length and diameter. No significant seasonal differences were noted in weight and volume between regions and between Georgia and northern states. A close correlation existed between testes volume and percentage of females pregnant. No significant relationship was found between increasing age of young of the year and increasing testes weight and volume.--From abstr.

Pelton, Michael R. EFFECTS OF FREEZING ON WEIGHTS OF COTTONTAIL LENSES. *J. Wildl. Mgmt.* 34(1): 205-207, 2 figs. Jan. 1970. *WR 138: 21*
[Univ. Tenn., Knoxville.] Abstract: Decline in cottontail *(Sylvilagus floridanus)* lens weight due to freezing was dramatic and quite variable, indicating use of frozen lenses would be of little value for determining age. The presence of a black ciliary ring around the equator of frozen lenses was not a suitable criterion for separating frozen from normal lenses.

Sobey, W. R., and W. Menzies. MYXOMATOSIS: THE INTRODUCTION OF THE EUROPEAN RABBIT FLEA *SPILOPSYLLUS CUNICULI* (DALE) INTO AUSTRALIA. *Australian J. Sci.* 31 (11): 404-406. May 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 21*

Stout, Gene G. THE BREEDING BIOLOGY OF THE DESERT COTTONTAIL IN THE PHOENIX REGION, ARIZONA. *J. Wildl. Mgmt.* 34(1): 47-51, 3 figs. Jan. 1970. *WR 138: 21*
[Ariz. State Univ., Tempe.] Abstract: The breeding biology of the desert cottontail *(Sylvilagus audubonii arizonae)* was studied from 101 specimens collected in the Phoenix region, Arizona, from October, 1967, to September, 1968, and also from 91 specimens in the Arizona State University mammal collection. The eye-lens weight method for aging cottontails was useful for specimens up to about 150 days old. Males with scrotal testes were generally in breeding condition while those with abdominal testes had no epididymal sperm. The majority of sexually mature males (over 100 days old) were capable of breeding most of the year, but there was a decrease in percentage of males in breeding condition during September through November. The females bred from January to August, and this period was not correlated with the November to March and July to August rainy seasons in this area. Corpora lutea counts averaged 4.3, but actual litter size (recent uterine scar counts) was 2.7 due to prenatal loss. Generally, desert cottontails must be at least 3 months old before breeding. At birth cottontails are approximately 80 mm in length.

Stringer, Richard P., Reinard Harkema, and Grover C. Miller. PARASITES OF RABBITS IN NORTH CAROLINA. *J. Parasitol.* 55(2): 328. Apr. 1969. *WR 138: 21*
[Johns Hopkins Univ., Baltimore, Md.]

Vande Vusse, Frederick J. DOES COTTONTAIL SEX OR AGE AFFECT INCIDENCE OF *TAENIA PISIFORMIS CYSTICERCI*? *J. Parasitol.* 55(3): 675-676. June 1969. *WR 138: 21*
[Gustavus Adolphus Coll., St. Peter, Minn.]

RODENTS--MISCELLANEOUS

Bailey, George N. A. TRAP-SHYNESS IN A WOODLAND POPULATION OF BANK VOLES *(CLETHRIONOMYS GLAREOLUS)*. *J. Zool.* 156(4): 517-521. Dec. 1968. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 21*

Baker, Rollin H. COTTON RATS OF THE *SIGMODON FULVIVENTER* GROUP. *Univ. Kans. Mus. Nat. Hist. Misc. Publ.* 51: 177-232. 11 July 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 22*

Beatley, Janice E. DEPENDENCE OF DESERT RODENTS ON WINTER ANNUALS AND PRECIPITATION. *Ecology* 50(4): 721-724. Summer 1969. *WR 138: 22*
[Univ. Calif., Los Angeles.] Reproduction in desert rodents was correlated with the presence of winter annuals.--Courtesy/ Paul A. Stewart.

Bindra, O. S., and Prem Sagar. BREEDING HABITS OF THE FIELD RAT *MILLARDIA MELTADA* (GRAY). *J. Bombay Nat. Hist. Soc.* 65(2): 477-481. Aug. 1968. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 22*

Bobek, Bogusław. SURVIVAL, TURNOVER AND PRODUCTION OF SMALL RODENTS IN A BEECH FOREST. *Acta Theriologica* 14(15): 191-120, 5 figs. 30 Aug. 1969. In English with Polish summ. *WR 138: 22*
[Jagiellonian Univ., Kraków, Poland.] *"Clethrionomys glareolus* and *Apodemus flavicollis."*

Brown, James H., and George A. Bartholomew. PERIODICITY AND ENERGETICS OF TORPOR IN THE KANGAROO MOUSE, *MICRODIPODOPS PALLIDUS*. *Ecology* 50(4): 705-709, 7 figs. Summer 1969. *WR 138: 22*
[Univ. Calif., Los Angeles.] When the animals were given excess food, none became torpid at either 17° or 6°C, but when the daily ration was reduced to 1.5 g all individuals became torpid. Duration of torpor varied inversely with temperature. Periods of torpor varied from a few hours to several days.--From abstr. Courtesy/ Paul A. Stewart.

Carney, W. Patrick, and Paul D. Leiby. *ECHINOCOCCUS MULTILOCULARIS* IN *PEROMYSCUS MANICULATUS* AND *VULPES VULPES* FROM MINNESOTA. *J. Parasitol.* 54(4): 714. Aug. 1968. *WR 138: 22*
[Minot State Coll., Minot, N. Dak.]

Drickamer, Lee C. SEED PREFERENCES IN WILD CAUGHT *PEROMYSCUS MANICULATUS BAIRDII* AND *PEROMYSCUS LEUCOPUS NOVEBORACENSIS*. *J. Mammal.* 51(1): 191-194. Feb. 1970. *WR 138: 22*
[Mich. State Univ., East Lansing.]

Emelyanova, I. A. ON THE TECHNIQUE OF TESTING THE RESISTANCE OF SYNTHETIC MATERIALS TO DAMAGE BY RODENTS. *Vestnik Moscow Univ. Ser.* 6(2): 111-112. Mar.-Apr. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 22*

Fay, Francis H., and Robert L. Rausch. PARASITIC ORGANISMS IN THE BLOOD OF ARVICOLINE RODENTS IN ALASKA. *J. Parasitol.* 55(6): 1258-1265, 6 figs. Dec. 1969. *WR 138: 22*
[Arctic Health Res. Center, College, Alaska.]

Fujimaki, Yuzo. [REPRODUCTIVE ACTIVITY IN *APODEMUS ARGENTEUS* TEMMINCK.] *J. Mammal. Soc. Japan* 4(3): 74-80. Mar. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Japanese with English summ.] *WR 138: 22*

Gebczyński, Marek. SOCIAL REGULATION OF BODY TEMPERATURE IN THE BANK VOLE. *Acta Theriologica* 14(29): 427-440, 3 figs. 15 Dec. 1969. In English with Polish summ. *WR 138: 22*
[Mammals Res. Inst., Białowieża, Poland.] *"Clethrionomys glareolus."*

Goertz, John W. AN ECOLOGICAL STUDY OF *NEOTOMA FLORIDANA* IN OKLAHOMA. *J. Mammal.* 51(1): 94-104. Feb. 1970. *WR 138: 22*
[La. Polytech. Inst., Ruston.] Habitats, sex ratios, reproductive conditions, and movements of the eastern woodrat *(Neotoma floridana)* were studied between October 1959 and September 1961 in Payne County, Oklahoma. Woodrats were captured

in four different plant associations. Upland woods, riparian woods, savanna-edge, and grass-forb associations, in that order, contained the highest to the lowest densities of woodrats. The sex ratio was 1:1. Litter size varied from 2 to 7 per female and averaged 3.2. Males had larger home ranges than females even though they were captured less frequently and though the average number of days between the first and last capture was almost twice as much for females as for males. Males captured 5 to 24 times had an average home range of 0.64 acre compared to 0.41 for females captured the same number of times. About 95% of the woodrats marked disappeared from the study area within one year after their initial capture.--From abstr.

Górecki, Andrzej. METABOLIC RATE AND ENERGY BUDGET OF THE STRIPED FIELD MOUSE. *Acta Theriologica* 14(14): 181-190, 2 figs. 30 Aug. 1969. In English with Polish summ. *WR 138: 23*
[Jagiellonian Univ., Kraków, Poland.] *"Apodemus agrarius."*

Hoover, Ken Dean, and Robert G. Lindeborg. THE FUNCTION OF BEHAVIOR IN SPECIATION IN THE DEER-MOUSE, *PEROMYSCUS*. *J. Colo.-Wyo. Acad. Sci.* 6(2): 58. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 23*
Abstract only.

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Kulik, I. L., and M. V. Fateeva. [CHARACTER OF UTILIZATION OF HOME RANGES BY ROOT VOLES *(MICROTUS OECONOMUS)* AS ESTABLISHED BY MEANS OF STUDYING THE STRAINED URINE DISTRIBUTION.] *Zool. Zhur.* 14(3): 436-442. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Russian with English summ.] *WR 138: 23*

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[Archbold Biol. Sta., Lake Placid, Fla.] Nest-building behavior of *Peromyscus floridanus, P. gossypinus,* and *P. leucopus* was studied. The three species were compared on the basis of amount of cotton removed daily from a dispenser and the type of nest built, and *floridanus* and *gossypinus* were also tested for their tendency of shred paper strips. It is concluded that evolution of nest-building behavior of these three species, although influenced by gross climatic conditions, has been more closely associated with more proximate ecological factors such as habitat and nest site preferences which in turn help to determine the specific microclimates under which each species lives.--From summ.

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Migula, Paweł. BIOENERGETICS OF PREGNANCY AND LACTATION IN EUROPEAN COMMON VOLE. *Acta Theriologica* 14(13): 167-179, 2 figs. 30 Aug. 1969. In English with Polish summ. *WR 138: 24*
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RODENTS--MISCELLANEOUS--Continued

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Tietjen, Howard P. ORCHARD MOUSE CONTROL -- A PROGRESS REPORT. Reprint from *1969 Ann. Rept. Mass. Fruit Growers Assoc., Inc.* p. 60-66. [1969.] *WR 138: 25*
[Wildl. Res. Center, Denver, Colo.] Discussion of control methods for meadow mice and pine mice. Gophocide-treated oat groat baits with an additive of fruit extract were highly effective in controlling both species.

Trojan, Przemysław, and Bożena Wojciechowska. ECOLOGICAL MODEL AND TABLES OF THE DAILY COSTS OF MAINTENANCE (DEB) OF *MICROTUS ARVALIS* (PALL.). *Ekologia Polska--Ser. A* 17(17): 313-342, 2 figs. 1969. In English with Polish summ. *WR 138: 25*
[Univ. Silesia, Katowice, Poland.] Abstract: The ecological model DEB is composed of nest life, search for food, and reproduction. Respiration losses of a group of 4-8 nesting individuals of *Microtus arvalis* (Pall.) in the thermoneutral zone are independent of their number, while intensivity of thermoregulation decreases with increasing numbers in the nesting group, and with 7-8 voles costs of maintenance become dependent to a very slight extent on the temperature conditions of the habitat and close to minimum. DEB calculated on the basis of tables of the ecological model is 40-65% lower than the value assessed when other model concepts are accepted.

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[Inst. Med. & Vet. Sci., Adelaide, South Australia.] *"Clethrionomys glareolus* and *Apodemus sylvaticus."*

SCIURIDS

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Clark, Tim W. EARLY GROWTH, DEVELOPMENT, AND BEHAVIOR OF THE RICHARDSON GROUND SQUIRREL *(SPERMOPHILUS RICHARDSONI ELEGANS)*. *Am. Midland Nat.* 83(1): 197-212, 2 figs. Jan. 1970. *WR 138: 26*
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[Darjeeling Government Coll., Darjeeling, West Bengal, India.] *"Petauriста magnificus."*

Dorney, Robert S. EPIZOOTIOLOGY OF TRYPANOSOMES IN RED SQUIRRELS AND EASTERN CHIPMUNKS. *Ecology* 50(5): 817-824, 2 figs. Late Summer 1969. *WR 138: 26*
[Univ. Waterloo, Waterloo, Ontario, Canada.] Seasonal and annual variation in incidence of trypanosome infections among *Tamiasciurus hudsonicus* and *Tamias striatus* are discussed.--Courtesy/ Paul A. Stewart.

Finley, Robert B., Jr. CONE CACHES AND MIDDENS OF *TAMIASCIURUS* IN THE ROCKY MOUNTAIN REGION. *Univ. Kans. Mus. Nat. Hist. Misc. Publ.* 51: 233-273. 11 July 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 26*

Lockner, F. Russell. SOME CAUSAL FACTORS OF FOOD MANIPULATION IN THE RED-TAILED CHIPMUNK *EUTAMIAS RUFICAUDUS*. *Am. Midland Nat.* 83(1): 308-311. Jan. 1970. *WR 138: 26*
[Sonoma State Coll., Rohnert Park, Calif.] Abstract: Food manipulating behavior was studied in five captive red-tailed chipmunks, *Eutamias ruficaudus*. Manipulation was classified into five types based on the extent of rotation of the food and the manner in which the food was held in the paws. The type of manipulation depended upon both size and shape of the food, but not upon its consistency. Chipmunks manipulated large food items more than smaller ones, and tended to rotate spherical food items rapidly before eating them. The function of food manipulation may be to position the food so that the animal can shear off pieces with the lower incisors while anchoring the food against the upper incisors.

Lynch, G. Robert, and G. Edgar Folk, Jr. DISTRIBUTION AND HABITAT OF THE RED SQUIRREL, *TAMAISCIURUS HUDSONICUS*, IN THE NORTH CENTRAL STATES. *Proc. Iowa Acad. Sci.* 75: 463-466. 1968. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 26*

Mrosovsky, N., and K. C. Fisher. SLIDING SET POINTS FOR BODY WEIGHT IN GROUND SQUIRRELS DURING THE HIBERNATION SEASON. *Canadian J. Zool.* 48(2): 241-247, 4 figs. Mar. 1970. *WR 138: 26*
[Univ. Toronto, Toronto, Ontario, Canada.] Abstract: The duration of the hibernation season of 13-lined ground squirrels, *Citellus tridecemlineatus*, repeatedly aroused over the winter, was only slightly less than that of undisturbed animals. The aroused animals ate more than eight times as much food during the middle of their hibernation season. This suggests that ground squirrels compensate by increased food intake for extra energy expenditure forced on them by repeated arousals. Aroused animals deprived of food lost weight at a greater rate than undisturbed animals. When food was returned they gained weight rapidly. However, weights did not return to predeprivation levels, but only to levels appropriate for the stage of the cycle at the time food was returned. These findings suggest that, even when ground squirrels are losing weight over the winter, they regulate their weight, but at a level that progressively declines. The underlying mechanisms probably depend on adjustments to the balance between medial and lateral hypothalamic areas.

Parker, James C. PARASITES OF THE GRAY SQUIRREL IN VIRGINIA. *J. Parasitol.* 54(3): 633-634. June 1968. *WR 138: 26*
[Va. Polytech. Inst., Blacksburg.]

SCIURIDS--Continued

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Voipio, Paavo, and Raimo Hissa. CORRELATION WITH FUR DENSITY OF COLOR POLYMORPHISM IN *SCIURUS VULGARIS*. *J. Mammal.* 51(1): 185-187. Feb. 1970. *WR 138: 27*
[Univ. Turku, Turku, Finland.]

Waring, George H. SOUND COMMUNICATIONS OF BLACK-TAILED, WHITE-TAILED, AND GUNNISON'S PRAIRIE DOGS. *Am. Midland Nat.* 83(1): 167-185, 4 figs. Jan. 1970. *WR 138: 27*
[Southern Ill. Univ., Carbondale.] The sounds of black-tailed, white-tailed, and Gunnison's prairie dogs were studied in Colorado and Wyoming from February 1964 to June 1966. Observations, photographs, and tape recordings were made in the field and were supplemented by data collected from captive prairie dogs.--From abstr.

BEAVER

Aleksiuk, Michael. THE FUNCTION OF THE TAIL AS A FAT STORAGE DEPOT IN THE BEAVER *(CASTOR CANADENSIS)*. *J. Mammal.* 51(1): 145-148, 4 figs. Feb. 1970. *WR 138: 27*
[Univ. Manitoba, Winnipeg, Manitoba, Canada.]

Brenner, Fred J. OBSERVATIONS OF THE HELMINTH PARASITES IN BEAVERS. *J. Mammal.* 51(1): 171-173. Feb. 1970. *WR 138: 27*
[Grove City Coll., Grove City, Pa.]

Laanetu, Nikolai. [THE BEAVER IN ESTONIA.] *Eesti Loodus* (Tartu) 12(3): 151-154. Mar. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Estonian with English summ.] *WR 138: 27*

Nixon, Charles M., and James Ely. FOODS EATEN BY A BEAVER COLONY IN SOUTHEAST OHIO. *Ohio J. Sci.* 69(5): 313-319. Sept. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 27*

Osborn, J. W. DENTINE HARDNESS AND INCISOR WEAR IN THE BEAVER *(CASTOR FIBER)*. *Acta Anat.* 72(1): 123-132. 1969. [From J. Mammal. 51(1, suppl.), 1970. In English with French and German summ.] *WR 138: 27*

MUSKRAT & NUTRIA

Aliev, Farman. POPULATION STRUCTURE OF THE MUSKRAT, *ONDATRA ZIBETHICUS* (LINNÉ, 1766), AND ITS NUMERICAL FLUCTUATIONS IN USSR. *Säugetierk. Mitteil.* 17 (2): 152-155. June 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 27*

Danielewicz, Kazimierz, and Władysław Strojny. [MUSK-RAT *ONDATRA ZIBETHICA* (L.) IN THE WROCŁAW VOIVODESHIP DURING 1960-1966.] *Przegl. Zool.* 13(1): 104-115. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Polish with English summ.] *WR 138: 27*

Judd, William W. INVERTEBRATES FROM AN ABANDONED MUSKRAT HOUSE AT LONDON, ONTARIO. *Canadian J. Zool.* 48(2): 402-403. Mar. 1970. *WR 138: 27*
[Univ. Western Ontario, London, Ontario, Canada.]

BEARS

Cook, H. W., J. W. Lentfer, A. M. Pearson, and B. E. Baker. POLAR BEAR MILK. IV. GROSS COMPOSITION, FATTY ACID, AND MINERAL CONSTITUTION. *Canadian J. Zool.* 48(2): 217-219. Mar. 1970. *WR 138: 28*
[McGill Univ., Macdonald College P.O., Quebec, Canada.]

Novikov, G. A., A. E. Airapetjants, Yu. B. Pukinsky, E. K. Timofeeva, and I. M. Fokin. [SOME PECULIARITIES OF POPULATION OF BROWN BEARS IN THE LENINGRAD DISTRICT.] *Zool. Zhur.* 48(6): 885-901. June 1969. [From J. Mammal. 51(1, suppl.), 1970. In Russian with English summ.] *WR 138: 28*

Sauer, Peggy R., Stuart L. Free, and Stephen D. Browne. MOVEMENT OF TAGGED BLACK BEARS IN THE ADIRONDACKS. *N.Y. Fish & Game J.* 16(2): 205-223, 9 figs. July 1969. *WR 138: 28*
Abstract: A total of 161 black bears from the Adirondack region were trapped and ear tagged from 1956 through 1965, and 208 recoveries were recorded by retrapping and hunting. Animals released within 5 miles of the trapsite dispersed randomly, males moving a mean distance of 8.6 miles, and females a mean distance of 7.4 miles. Recoveries during the summer were confined mainly to areas where tourist and camping facilities provided a supplementary food supply. Dispersal from these areas was noted during October and November. A better definition of home range is needed than that provided by recovery data of this sort, i.e., one that relates the size and shape of home range to the animals' yearly activities. Nuisance animals transferred between 8.7 and 66.6 miles from the trapsite tended to move back in the direction from which they were transferred, and 22 of 52 such bears returned home. Homing fell off sharply when animals were transferred more than 40 miles; however, one male returned home after being transferred 56 miles. This success in homing indicates a homing instinct and/or familiarity of many bears with much of the Adirondack range. Thus, transfer is not a practical solution to the nuisance bear problem in the Adirondacks.

Stafford, Steven K., and Lovett E. Williams, Jr. DATA ON CAPTURING BLACK BEARS WITH ALPHA-CHLORALOSE. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 161-165. 1968 [1969]. *WR 138: 28*
[Fla. Game & Fresh Water Fish Comm., Gainesville.] Experimental dosages of alpha-chloralose, an odorless and nearly tasteless oral anesthetic, were administered on baits to 17 wild black bears *(Ursus americanus)* and two captive wild bears. Nine of the 17 were sufficiently narcotized to permit handling without mechanical restraint up to 48 hours later. The other free-living bears escaped in sub-effective narcosis or if anesthetized, were not located in the field. One bear died as a result of chloralose overdosage and another succumbed from an overdose of pentabarbital sodium administered after capture. Preliminary data on the application of the method and some suggestions for further research are presented.--From abstr.

RACCOON, RINGTAIL, COATI

Montgomery, G. G., J. W. Lang, and M. E. Sunquist. A RACCOON MOVES HER YOUNG. *J. Mammal.* 51(1): 202-203. Feb. 1970. *WR 138: 28*
[Univ. Minn., Minneapolis.]

MUSTELIDS

Kaszowski, Sylwester, Charles C. Rust, and Richard M. Shackelford. DETERMINATION OF HAIR DENSITY IN THE MINK. *J. Mammal.* 51(1): 27-34, 3 figs. Feb. 1970. *WR 138: 28*
[Rust: Univ. Wis. Center, Janesville.]

Keppner, Edwin J. OCCURRENCE OF *ATRIOTAENIA PROCYONIS* AND *MOLINEUS MUSTELAE* IN THE BADGER, *TAXIDEA TAXUS* (SCHREBER, 1778), IN WYOMING. *J. Parasitol.* 55(6): 1161. Dec. 1969. *WR 138: 29*
[Univ. Wyo., Laramie.]

Pederson, Ernest D., and Paul D. Leiby. STUDIES ON THE BIOLOGY OF *MONORDOTAENIA TAXIDIENSIS*, A TAENIID CESTODE OF THE BADGER. *J. Parasitol.* 55(4): 759-765, 15 figs. Aug. 1969. *WR 138: 29*
[Minot State Coll., Minot, N. Dak.]

Polder, Emmett. SPOTTED SKUNK AND WEASEL POPULATIONS DEN AND COVER USAGE BY NORTHEAST IOWA. *Proc. Iowa Acad. Sci.* 75: 142-146. 1968. [From J. Mammal. 51 (1, suppl.), 1970.] *WR 138: 29*

Stubbe, Michael. ZUR POPULATIONSBIOLOGIE DER *MARTES*-ARTEN. [ON THE POPULATION BIOLOGY OF THE SPECIES OF *MARTES*.] *Beitr. Jagd- Wildforsch.* (Berlin) 104: 195-203. 1968. [From J. Mammal. 51(1, suppl.), 1970. In German.] *WR 138: 29*

Teagle, W. G. THE BADGER IN THE LONDON AREA. *London Nat.* 48: 48-75. Aug. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 29*

DOGS, WOLVES, FOXES

Allan, Roger A. MOVEMENTS AND DAILY ACTIVITIES OF FOX AS DETERMINED BY VISUAL OBSERVATIONS AND RADIO TRACKING. *Proc. Iowa Acad. Sci.* 75: 147-151. 1968. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 29*

Chesemore, David L. NOTES ON THE PELAGE AND PRIMING SEQUENCE OF ARCTIC FOXES IN NORTHERN ALASKA. *J. Mammal.* 51(1): 156-159. Feb. 1970. *WR 138: 29*
[Okla. Coop. Wildl. Res. Unit, Stillwater.]

Fox, M. W. THE ANATOMY OF AGGRESSION AND ITS RITUALIZATION IN CANIDAE: A DEVELOPMENTAL AND COMPARATIVE STUDY. *Behaviour* 35(3-4): 242-258, 15 figs. on 14 pls. 1969. In English with French summ. *WR 138: 29*
[Washington Univ., St. Louis, Mo.] Summary: The postnatal development of agonistic behavior patterns in the wolf, coyote and grey fox are described, and in the red and Arctic fox which were first observed at a later age. Piloerection and back arching were present in all species, the latter behavior being especially well developed in the grey fox. The orientation of attack was almost exclusively directed at the cheek in the grey fox but in other canids the shoulder hackle area, throat and muzzle area were also attacked; prolonged bouts of jaw-muzzled wrestling occurred in the wolf, scruff-wrestling in wolf and coyote and dog, and cheek-wrestling in the grey fox during agonistic play (play-fighting). Orientation of attack was correlated with distinctive body markings in various species. The contribution of social experience in the ontogeny of scruff-oriented attack was demonstrated in hand-raised isolated dogs and visually deprived group-raised dogs. The significance of head-turning, looking away and avoidance of eye contact in the wolf and dog is discussed.

Fox, M. W. ONTOGENY OF PREY-KILLING BEHAVIOR IN CANIDAE. *Behaviour* 35(3-4): 259-272, 3 figs. on 3 pls. 1969. In English with French summ. *WR 138: 29*
[Washington Univ., St. Louis, Mo.] Summary: The development of prey-killing behavior in naive hand-raised wolves, coyotes and grey foxes was studied. Action patterns and sequences of prey-killing and play with prey were also determined in these species and also in the red and Arctic fox and domesticated dog. Movement of the prey was a strong stimulus to all canids, eliciting orientation, approach and attack. These reactions occurred earliest in ontogeny, followed by seizure of the prey and carrying to a safe or quiet place. Consummatory eating in the wolf and grey fox appeared to be triggered by blood. The ontogeny of

temporal sequences of prey killing behavior are detailed, and the action patterns which are species-specific and family-specific are compared. Temporal cycles of play with prey are described in the coyote and grey fox. The question of intraspecific and interspecies aggression in relation to prey killing patterns is discussed and the socio-ecological aspects of hunting, which have not been studied in this investigation, are considered.

Huey, Raymond B. WINTER DIET OF THE PERUVIAN DESERT FOX. *Ecology* 50(6): 1089-1091, 1 fig. Autumn 1969. *WR 138: 30*
[Univ. Texas, Austin.] In the desert, foxes *(Dusicyon sechurae)* eat mainly the seed pods of perennial shrubs; in a coastal area, these foxes also eat carrion and crustaceans.--From abstr. Courtesy/ Paul A. Stewart.

Paul, J. R. COYOTES AND KIN. *Explorer* 12(1): 23-25, illus. Spring 1970. *WR 138: 30*
[Ill. State Mus., Springfield.] Popular account of a research project on the coydog.

Phillips, Robert L. AGE RATIOS OF IOWA FOXES. *J. Wildl. Mgmt.* 34(1): 52-56, 2 figs. Jan. 1970. *WR 138: 30*
[Agassiz Natl. Wildl. Refuge, Middle River, Minn.] Abstract: The lens-weight method was used to determine the ages of 348 trapped red foxes *(Vulpes fulva)* collected in 1966 and 1967 from an area in central Iowa that had received intensive fox control for 7 years, and a second area in northeastern Iowa that received no special control. Analysis of the age data showed a significantly higher *(P<0.01)* proportion of juveniles in the central Iowa sample than in the northeast area sample. It is suggested that this difference in age ratios was caused by a preponderance of juvenile foxes moving into or through the vacant habitat in the central Iowa area. Information is presented on frequency distribution of lens weights according to sex and age.

CATS

Condé, B., and P. Schauenberg. REPRODUCTION DU CHAT FORESTIER D'EUROPE *(FELIS SILVESTRIS* SCHREBER) EN CAPTIVITÉ. [REPRODUCTION OF THE WILDCAT *FELIS SILVESTRIS* SCHREBER IN CAPTIVITY.] *Rev. Suisse Zool.* 76(1): 183-210 + 5 pls. Mar. 1969. [From J. Mammal. 51(1, suppl.), 1970. In French with German and English summ.] *WR 138: 30*

Eaton, Randall L. HUNTING BEHAVIOR OF THE CHEETAH. *J. Wildl. Mgmt.* 34(1): 56-67. Jan. 1970. *WR 138: 30*
[Purdue Univ., Lafayette, Ind.] Abstract: The predator-prey aspects of four cheetah *(Acinonyx jubatus)* groups were studied in Nairobi National Park, Kenya, from October, 1966, through February, 1967. Hunt:kill ratios were applied to direct observation data of 157 hunts and 30 kills. Hunting success apparently varied with habitat-type, prey species, sex and age-classes of prey, herd size, cheetah group size, and the cheetah's or group's hunting experience. Cheetah kills appeared to be other than a random sample of prey populations. There was differential selection in prey of females and juveniles.

Schauenberg, Paul. LE LYNX *LYNX LYNX LYNX* (L.) EN SUISSE ET DANS LES PAYS VOISINS. [THE LYNX *(LYNX LYNX* (L.)) IN SWITZERLAND AND THE NEIGHBORING COUNTRIES.] *Rev. Suisse Zool.* 76(1): 257-287. Mar. 1969. [From J. Mammal. 51(1, suppl.), 1970. In French with German and English summ.] *WR 138: 30*

Schmidt, Gerald D. *ONCICOLA CANIS* (KAUPP, 1909) (ACANTHOCEPHALA) FROM *FELIS LYNX* IN ALASKA. *J. Parasitol.* 54(5): 930. Oct. 1968. *WR 138: 30*
[Colo. State Coll., Greeley.]

BIG GAME, GENERAL

Bannerman, M. M., and K. L. Blaxter, editors. THE HUSBANDING OF RED DEER / PROCEEDINGS OF A CONFERENCE HELD AT THE ROWETT INSTITUTE, ABERDEEN, IN JANUARY 1969. *University Press* (Aberdeen). viii + 79 p. [1969.] Available from Reid Library, Rowett Inst., Aberdeen, Scotland, at 7s. 6d. *WR 138: 31*

Papers presented were: *The potential market for venison and its possible operations*, G. H. M. Bland; *The potential output of meat as estimated from natural and park populations of red deer*, B. Mitchell; *Deer behaviour and its possible effects on deer husbandry*, B. W. Staines; *Herd management suggestions on the basis of park stocks*, C. Lucas; *Herd management in Woburn Abbey Park*, D. Talbot; *Reproductive physiology and behaviour of red deer*, R. V. Short; *Natural food preferences based on field studies*, I. A. Nicholson and W. N. Charles; *Experimental studies of food intake and digestion (a) Studies on tame red deer*, R. N. B. Kay; *Experimental studies of food intake and digestion (b) Studies on the rumen metabolism and other features of red deer, hill sheep and reindeer in the Scottish hills*, P. N. Hobson; *Diseases of red deer and their possible significance in deer farming projects, veterinary preventive medicine and public health*, A. McDiarmid; *A note on public health and meat inspection aspects of farmed deer*, G. G. Dickie; *Sheep and deer: the experience of the Hill Farming Research Organisation*, J. M. M. Cunningham; *Stalking as an alternative or as a complement*, L. MacNally; *Red deer and marginal land*, J. D. Lockie; and *Possibilities of husbanding red deer in managed forests*, J. D. Matthews and M. Crooke.

Boddicker, Major L., and Ernest J. Hugghins. HELMINTHS OF BIG GAME MAMMALS IN SOUTH DAKOTA. *J. Parasitol.* 55(5): 1067-1074, 1 fig. Oct. 1969. *WR 138: 31*

[S. Dak. State Univ., Brookings.] Abstract: A study was undertaken to determine the incidence, distribution, and relative importance of helminths in wild ruminants of South Dakota. Big game species examined and numbers of helminth species found were as follows: 83 white-tailed deer (5 species of nematodes, 3 of cestodes), 30 mule deer (3 spp. of nematodes, 3 of cestodes), 60 pronghorn antelope (13 spp. of nematodes, 2 of cestodes), 20 elk (5 spp. of nematodes, 2 of cestodes), 5 bison (7 spp. of nematodes, 1 of cestode), 3 bighorn sheep (6 spp. of nematodes, 2 of cestodes), and one mountain goat (3 spp. of nematodes). There were new host records for several species of nematodes. The absence of trematodes was conspicuous. The pronghorn antelope was the most heavily parasitized of the 7 species sampled. Since they occur on livestock rangelands in the western part of the state, they may have some importance as reservoirs for helminths of sheep and cattle. The presence of lungworms, *Protostrongylus* spp., in the bighorn sheep and mountain goat merits further investigation, as lungworms have been implicated as limiting factors in populations elsewhere.

Cook, H. W., R. A. Rausch, and B. E. Baker. MOOSE *(ALCES ALCES)* MILK. GROSS COMPOSITION, FATTY ACID, AND MINERAL CONSTITUTION. *Canadian J. Zool.* 48(2): 213-215. Mar. 1970. *WR 138: 31*

[McGill Univ., Macdonald College P.O., Quebec, Canada.]

Cowan, I. McT., and Wayne McCrory. VARIATION IN THE MOUNTAIN GOAT, *OREAMNOS AMERICANUS* (BLAINVILLE). *J. Mammal.* 51(1): 60-73, 2 figs. Feb. 1970. *WR 138: 31*

[Univ. British Columbia, Vancouver, Canada.] We conclude that there are no valid reasons for recognizing subspecies within *Oreamnos americanus* (Blainville). --From abstr.

DESERT BIGHORN COUNCIL 1969 TRANSACTIONS. ii + 134 p., illus., photo-offset. 1970. Available at $2.00 from Desert Bighorn Council, 1500 North Decatur Blvd., Las Vegas, Nev. 89108. *WR 138: 31*

Contains 20 papers as follows: *Bighorn hunting, surveys and habitat development in Utah*, Rodney T. John; *Factors affecting the desert bighorn sheep in southeastern Utah*, Charles A. Irvine; *A desert bighorn habitat management plan*, Joshua L. Warburton; *A new wildlife recorder*, Rudy Drobnick; *Mineral deficiencies in desert bighorns and domestic livestock in San Juan County*, Carl L. Mahon; *Desert bighorn in Canyonlands National Park, Utah*, Donald S. Follows; *Nevada's*

1968 transplant disappointment, Robert V. Broadbent; *Helicopter surveys of the desert bighorn in northwestern Arizona*, James E. Jett; *Heat stress and bighorn behavior in the Cabeza Prieta Game Range, Arizona*, Norman M. Simmons; *Bighorn status at Organ Pipe Cactus National Monument*, James W. Carrico; *Bighorn research in California*, Richard A. Weaver; *Nevada desert bighorn hunt results, 1968-69*, Larry Barngrover; *Status of desert bighorn sheep in New Mexico*, Robert D. Welch; *Status of transplanted bighorns in Texas 1969*, Tommy L. Hailey; *Bighorn research support by the National Park Service*, Lowell Sumner; *Burro problems in the Southwest*, A. E. Smith; *Reported expenditures for bighorn sheep hunting in Idaho*, J. Juan Spillett and James K. Morgan; *The Stubbe Spring guzzler: an artificial method to conserve water, bighorn sheep and naturalness in Joshua Tree National Monument*, James K. Baker; *The forgotten desert bighorn habitat requirement*, Lanny O. Wilson; and *Behavioral patterns of desert bighorn sheep in south-central New Mexico*, Robert D. Welch.

Durov, V. V., and V. N. Alexandrov. [MEASUREMENTS AND WEIGHT OF WILD BOARS IN THE CAUCASUS SANCTUARY.] *Pape. State Sanctuary Caucasus* (Moscow) 10: 294-301. 1968. [From J. Mammal. 51(1, suppl.), 1970. In Russian.] *WR 138: 32*

Dyková, Iva. *ELAPHOSTRONGYGYLUS CERVI* CAMERON, 1931 IN THE CENTRAL NERVOUS SYSTEM OF RED DEER *(CERVUS ELAPHUS)*. *Folia Parasitol.* (Prague) 16(1): 74. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 32*

Dzieciołowski, Ryszard. REPARTITION OF HABITAT NICHES WITHIN THE AREA OF RED DEER *(CERVUS ELAPHUS* L.) POPULATION. *Ekologia Polska--Ser. A* 17(22): 381-389. 1969. In English with Polish summ. *WR 138: 32*
[Forest Res. Inst., Warsaw, Poland.] A statistical study of the relationship between number of observations of *Cervus elaphus* in seven plant associations by season.

Estes, Richard D. TERRITORIAL BEHAVIOR OF THE WILDEBEEST *(CONNOCHAETES TAURINUS* BURCHELL, 1823*)*. *Z. Tierpsychol.* 26(3): 284-370. May 1969. [From J. Mammal. 51(1, suppl.), 1970. In (English) with German summ.] *WR 138: 32*

Gilbert, Barrie K. DEVELOPMENT OF SOCIAL BEHAVIOR IN THE FALLOW DEER *(DAMA DAMA)*. *Z. Tierpsychol.* 25(7): 867-876. Oct. 1968. [From J. Mammal. 51(1, suppl.), 1970. In English with German summ.] *WR 138: 32*

Gillet, Hubert. LA VEGETATION DU PARC NATIONAL DE ZAKOUMA (TCHAD) ET SES RAPPORTS AVEC LES GRANDS MAMMIFÈRES. [THE VEGETATION OF THE ZAKOUMA NATIONAL PARK (CHAD) AND ITS RELATION TO BIG GAME.] *Terre & Vie* 1969(4): 373-485, 25 figs. Oct.-Dec. 1969. In French. *WR 138: 32*
[Mus. Natl. Hist. Nat., Paris, France.] Twenty-two species of big game are considered.

Gomer, E. R., J. C. Capp, and V. Scott. 1968 ELK DISTRIBUTION IN THE SACRAMENTO AND WHITE MOUNTAINS OF NEW MEXICO. *Bur. Indian Affairs, Mescalero Agency, N. Mex.*, and *U.S. Forest Service* (Alamogordo, N. Mex.). 17 p., multilith. Nov. 1969. *WR 138: 32*
An account of the redistribution of 162 Rocky Mountain elk that were released on the Mescalero Indian Reservation during 1966-67. Competition by elk with cattle and deer was considered negligible. However, competition between elk and horses for forage and water may become important in the future.

Gosling, L. M. PARTURITION AND RELATED BEHAVIOR IN COKE'S HARTEBEEST, *ALCELAPHUS BUSELAPHUS COKEI* GUNTHER. *J. Reprod. Fertility* suppl. 6: 265-286. Feb. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 32*

Hoogstraal, Harry, Glen M. Kohls, and Dale W. Parrish. STUDIES ON SOUTHEAST ASIAN *HAEMAPHYSALIS* TICKS (IXODOIDEA, IXODIDAE). *H. (KAISERIANA) SUSPHILIPPENSIS* SP. N., A PARASITE OF LUZON AND MINDANAO BOARS. *J. Parasitol.* 54(3): 616-621, 21 figs. June 1968. *WR 138: 33*
[U.S. Naval Med. Res. Unit No. 3, Cairo, Egypt.]

Komov, V. A. [THE KUBANSKI GOAT *(CAPRA CAUCASICA* GULD.), ITS ECOLOGY AND ECONOMIC SIGNIFICANCE.] *Pape. State Sanctuary Caucasus* (Moscow) 10: 200-293. 1968. [From J. Mammal. 51(1, suppl.), 1970. In Russian.] *WR 138: 33*

Kotrlý, Alois, and Božena Kotrlá-Erhardová. SEZONNI DYNAMIKA ÍNVASNIHO CYKLU HLAVNÍCH HELMINTOS JELENÍ A SRNČÍ ZVĚŘE. [SEASONAL-DYNAMICS OF THE INVASION CYCLES OF THE MOST IMPORTANT HELMINTHS OF *CERVUS ELAPHUS* AND *CAPREOLUS CAPREOLUS.*] *Prace VULHM* 36: 53-61, 6 figs. 1968. In Czech with Russian and German summ. *WR 138: 33*

Lehmann, Ernst v. ÜBER DAS VORKOMMEN DES SPANISCHEN ROTHIRSCHES, *CERVUS ELAPHUS BOLIVARI*, CABRERA, 1911, IN NORDMAROKKO. [ON THE OCCURRENCE OF THE SPANISH RED DEER *(CERVUS ELAPHUS BOLIVARI)* IN NORTH MOROCCO.] *Säugetierk. Mitteil.* 17(2): 137-141. June 1969. [From J. Mammal. 51(1, suppl.), 1970. In German with English summ.] *WR 138: 33*

Mambetzhumaev, A. M. [NEW DATA CONCERNING THE DISTRIBUTION OF THE ARGALI *OVIS AMMON SEVERTOZOVI* (ARTIODACTYLA, CAPRINAE) IN KYSYLKUMY.] *Zool. Zhur.* 14 (3): 455-456. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Russian with English summ.] *WR 138: 33*

McConnell, Burt R., and Justin G. Smith. FREQUENCY DISTRIBUTIONS OF DEER AND ELK PELLET GROUPS. *J. Wildl. Mgmt.* 34(1): 29-36. Jan. 1970. *WR 138: 33*
[Pacific NW Forest & Range Expt. Sta., La Grande, Oreg.] Abstract: Frequency distributions of deer *(Odocoileus hemionus)* and elk *(Cervus canadensis)* pellet groups were determined on seven uniform areas in Washington and Oregon ranging from 2-230 acres. Distributions of groups on six areas agreed with the Poisson series and were considered random. The lack of randomness on the remaining area was believed to result from the manner of cattle grazing and the peripheral influence of an adjacent timbered hillside and ravine used by deer for watering, resting, and escape. The distribution of groups on this area provided equally good fits to the Neyman Type A, Thomas Double Poisson, and negative binomial models, but the latter was preferred for practical reasons. Distributions of deer and elk pellet groups on the 10,000-acre Starkey Experimental Forest and Range in Oregon were also studied. They departed widely from the Poisson model but were in close agreement with the negative binomial model. Elk pellet groups were less aggregated than deer groups, and the pattern of distribution of both appeared to be influenced more by environmental than social factors.

McEwan, E. H. ENERGY METABOLISM OF BARREN GROUND CARIBOU *(RANGIFER TARANDUS). Canadian J. Zool.* 48(2): 391-392. Mar. 1970. *WR 138: 33*
[Univ. British Columbia, Vancouver, British Columbia, Canada.] Abstract: The heat production of two caribou, during fasting, 91 kcal and 102 kcal/$W^{0.75}$ per 24 h, was 20 to 30% higher than the quoted interspecific mean of 70 kcal/$W^{0.75}$ per 24 h. The mean heat production values of two female caribou at the maintenance level of feeding were 107.0 kcal and 124.5 kcal/$W^{0.75}$ per 24 h.

Naumov, N. P., and L. M. Baskin. [LEADERSHIP IN HERDS OF REINDEERS AS A GROUP ADAPTATION.] *J. Gen. Biol.* (Moscow) 30(2): 147-156. Mar.-Apr. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Russian with English summ.] *WR 138: 33*

Olson, Dean F. REINDEER OWNERSHIP IN ALASKA. *Polar Record* 14(92): 629-635. May 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 33*

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Pegau, Robert E. EFFECT OF REINDEER TRAMPLING AND GRAZING ON LICHENS. *J. Range Mgmt.* 23(2): 95-97, 3 figs. Mar. 1970. *WR 138: 34*

[Alaska Dept. Fish & Game, Nome.] Highlight: A herd of approximately 500 reindeer was herded over a non-utilized portion of a large *Eriophorum-Carex*-dwarf shrub meadow near Nome, Alaska during both moist and dry conditions. After one summer of use on approximately 17 sections by the reindeer, 68% of the lichens were dislodged and 16% were shattered into segments less than 0.5 inch. On summer ranges where lichens comprise at least 30% of the available forage, at least 15% of the lichens should be considered as unavailable because of trampling by reindeer.

Rudge, M. R. RESEARCH UPON FERAL GOATS *(CAPRA HIRCUS* L.). *Proc. New Zealand Ecol. Soc.* 15: 68. Aug. 1968. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 34*

Simmons, N. M. NON-RESIDENT BIG GAME HUNTING IN GAME MANAGEMENT ZONE 12, 1965 THROUGH 1968. *Canadian Wildl. Serv. Progress Notes* 11: 1-7. Oct. 1969. [From J. Mammal. 51(1, suppl.), 1970. In French and English.] *WR 138: 34*

Siuda, Andrzej, Wirgiliusz Żurowski, and Hanna Siuda. THE FOOD OF THE ROE DEER. *Acta Theriologica* 14(18): 247-262. 1969. In English with Polish summ. *WR 138: 34*

"Capreolus capreolus."

Skinner, J. D., and J. H. M. Van Zyl. REPRODUCTIVE PERFORMANCE OF THE COMMON ELAND, *TAUROTRAGUS ORYX*, IN TWO ENVIRONMENTS. *J. Reprod. Fertility* suppl. 6: 319-322. Feb. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 34*

Skuncke, Folke. REINDEER ECOLOGY AND MANAGEMENT IN SWEDEN. *Biol. Pape. Univ. Alaska.* iv + 82 p., 8 figs. Feb. 1969. Price $1.70. *WR 138: 34*

[Karl X Gustafs gata 62, Hälsingborg, Sweden.] Reindeer pastures and their grading, winter pasture supplies, normal utilization of winter pasture, and the economics of reindeer husbandry are the major topics of discussion.

Spencer, David L., and Calvin J. Lensink. THE MUSKOX OF NUNIVAK ISLAND, ALASKA. *J. Wildl. Mgmt.* 34(1): 1-15, 5 figs. Jan. 1970. *WR 138: 34*

[Bur. Sport Fisheries & Wildl., Anchorage, Alaska.] Abstract: A herd of 31 muskox *(Ovibos moschatus)*, established on Nunivak Island during 1935 and 1936, fluctuated in size until 1947 when it numbered 49 animals. Since 1947, the herd has increased at a nearly constant annual rate of 16 percent. The number of calves averaged 19 percent of the total population since 1947. Mortality averaged about 7 percent of the total herd, but has been more variable than productivity. The consistent calf crops indicate that many cows are mature and are bred when 2 years old and subsequently may produce calves each year. Winter range is sharply limited by climatic conditions and is fully utilized by the present herd. The continuation of this population as a productive nucleus for restocking former range in Alaska or for other purposes is dependent on maintaining the basic herd at numbers which winter range can support.

Stevens, David R. WINTER ECOLOGY OF MOOSE IN THE GALLATIN MOUNTAINS, MONTANA. *J. Wildl. Mgmt.* 34(1): 37-46, 2 figs. Jan. 1970. *WR 138: 34*

[Natl. Park Serv., Estes Park, Colo.] Abstract: Moose *(Alces alces shirasi)* winter range use and food habits were studied on the north slope of the Gallatin mountain range, Montana, from September, 1965, to December, 1967. Aerial observation indicated a low density population winters primarily on quaking aspen *(Populus tremuloides)* and Douglas-fir *(Pseudotsuga menziesii)* vegetation types. Migration from fall to winter range was gradual and lasted throughout the winter. Highest moose concentrations were found on the aspen and Douglas-fir types in March and April. Rumen sample analyses indicated that low red huckleberry *(Vaccinium scoparium)*, subalpine fir *(Abies lasiocarpa)*, and willow *(Salix* spp.) were the most important fall food items. Feeding site examinations indicated that willow, western serviceberry *(Amelanchier alnifolia)*, Chokeberry *(Prunus*

virginiana), and red dogwood *(Cornus stolonifera)* were the most important species in winter. Serviceberry, dogwood, and willow remained important into the spring, when increased use of currant *(Ribes* spp.*)* and some forbs was noted. Aquatic plants and grasses were found to be unimportant in the moose diet. Condition and trend transects indicated that the range was in poor condition and deteriorating further. Reproduction data indicated calf:cow ratios of 55:100 and 52:100, in 1965 and 1966, respectively. Aerial observation was effective in determining moose distribution but not for total census of the study area. Willow was not found as important to this moose population as has been reported for the Shiras moose on other areas.

Sumiński, Piotr. DAS SIKAWILD IN POLEN. [THE SIKA DEER IN POLAND.] *Beitr. Jagd- Wildforsch.* (Berlin) 104: 71-85. 1968. [From J. Mammal. 51(1, suppl.), 1970. In German.] *WR 138: 35*

Symington, R. B., and N. J. Paterson. A PRELIMINARY REPORT ON THE PHENOMENON OF UNILATERAL IMPLANTATION IN THE RIGHT UTERINE HORN OF THE COMMON DUIKER, *SYLVICAPRA GRIMMIA. Arnoldia* 4(32): 1-5. 7 Jan. 1970. *WR 138: 35*
[Univ. Coll. Rhodesia, Salisbury, Rhodesia.]

Tatarinov, K. A., and F. A. Djakoon. REACCLIMATIZATION OF EUROPEAN BISONS IN FORESTS OF THE VOLYN DISTRICT. *Zool. Zhur.* 48(4): 612-614. Apr. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Russian with English summ.] *WR 138: 35*

Taylor, C. R., D. Robertshaw, and R. Hofmann. THERMAL PANTING: A COMPARISON OF WILDEBEEST AND ZEBU CATTLE. *Am. J. Physiol.* 217(3): 907-910. Sept. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 35*

Taylor, C. R., C. A. Spinage, and C. P. Lyman. WATER RELATIONS OF THE WATERBUCK, AND EAST AFRICAN ANTELOPE. *Am. J. Physiol.* 217(2): 630-634. Aug. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 35*

Taylor, P. HOG DEER IN VICTORIA. *Victoria's Resources* 11(2): 20-22. June-Aug. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 35*

DEER (Odocoileus)

Allen, Thomas J. IMMOBILIZATION OF WHITE-TAILED DEER WITH SUCCINYLCHOLINE CHLORIDE AND HYALURONIDASE. *J. Wildl. Mgmt.* 34(1): 207-209. Jan. 1970. *WR 138: 35*
[Maine Coop. Wildl. Res. Unit, Orono.] Abstract: Succinylcholine chloride was administered intramuscularly with a CO_2 Cap-Chur gun to eight penned white-tailed deer *(Odocoileus virginianus)* and four free-ranging deer. In nine of the 18 tests an enzyme, hyaluronidase, was added to the drug. The average latent period for the drug without the adsorption-promoting enzyme was 5.1 minutes. Dosage levels ranged from 0.033 to 0.047 mg/lb with an average of 0.0338. When the enzyme was added to the drug the average latent period was 2.3 minutes, and dosage level range was 0.024 to 0.040 mg/lb, averaging 0.032. All animals recovered completely from the effects of the drug. The addition of hyaluronidase to succinylcholine chloride proved effective in shortening the latent period of the drug to facilitate capture.

Becklund, Willard W., and Martha L. Walker. *OSTERTAGIA DIKMANSI* SP. N. (NEMATODA: TRICHOSTRONGYLIDAE) FROM DEER, *ODOCOILEUS VIRGINIANUS*, WITH A KEY TO THE SPECIES OF MEDIUM STOMACH WORMS OF *ODOCOILEUS* IN NORTH AMERICA. *J. Parasitol.* 54(3): 441-444, 11 figs. June 1968. *WR 138: 35*
[Agr. Res. Serv., Beltsville, Md.]

Clark, Tim W. THE LIFE-FORM CONCEPT AND MULE DEER HABITAT IN OKLAHOMA. *Proc. Okla. Acad. Sci.* 48: 23-27. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 35*

Gilbert, Paul F., Olof C. Wallmo, and R. Bruce Gill. EFFECT OF SNOW DEPTH ON MULE DEER IN MIDDLE PARK, COLORADO. *J. Wildl. Mgmt.* 34(1): 15-23, 5 figs. Jan. 1970. *WR 138: 36*

[Colo. Div. Game, Fish & Parks, Hot Sulphur Springs.] Abstract: The distribution of mule deer *(Odocoileus hemionus)* on their winter range in Middle Park, north-central Colorado, is largely governed by snow depth. Snow over 18 inches deep essentially precludes deer use. In two of three winters of study, over 90 percent of the winter range was excluded from use because of snow. Fluctuations in winter deer counts were negatively correlated with November-February precipitation.

Hair, Jakie A., D. E. Howell, C. E. Rogers, and Joe Fletcher. OCCURRENCE OF THE PHARYNGEAL BOT *CEPHENEMYIA JELLISONI* IN OKLAHOMA WHITE-TAILED DEER, *ODOCOILEUS VIRGINIANUS*. *Ann. Entomol. Soc. Am.* 62(5): 1208-1210. Sept. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 36*

Halloran, Arthur F. DEER LIVE-TRAPPING HISTORY ON THE WICHITA MOUNTAINS WILDLIFE REFUGE, OKLAHOMA. *Proc. Okla. Acad. Sci.* 48: 205-207. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 36*

Halls, Lowell K., Jack D. McCarty, and Harry V. Wiant. RELATIVE BROWSING OF 16 SPECIES BY WHITE-TAILED DEER. *J. Range Mgmt.* 23(2): 146-147. Mar. 1970. *WR 138: 36*

[Southern Forest Expt. Sta., Nacogdoches, Texas.] Highlight: Among browse plants of 16 species in an east Texas pine-hardwood forest, winged elm was eaten most by white-tailed deer in spring. Alabama supplejack was palatable from spring through fall, and saw greenbrier was eaten all year. Even though they were plentiful, utilization was light for flowering dogwood, grape, poison-ivy, and rusty blackhaw. American beautyberry was browsed mainly in the fall. Yellow jessamine was eaten more than any other browse species during the winter.

Haney, James E. STUDIES OF WHITE-TAILED DEER. *Res. News, Univ. Mich.* 20(2): 2-8. Aug. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 36*

Hayes, Frank A. SOME EMERGENCY DISEASE ASPECTS OF DEER MANAGEMENT IN THE SOUTHEAST. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 102-106. 1968 [1969]. *WR 138: 36*

[Univ. Ga., Athens.] Brucellosis, anaplasmosis, piroplasmosis, and foot and mouth disease are discussed.

Hesselton, William T., and Emerson Van Dyke. TWIN FAWNS BORN TWO DAYS APART. *N.Y. Fish & Game J.* 16(2): 261. July 1969. *WR 138: 36*

[Wildl. Res. Lab., Delmar, N.Y.] *"Odocoileus virginianus."*

Marshall, A. D., and R. W. Whittington. A TELEMETRIC STUDY OF DEER HOME RANGES AND BEHAVIOR OF DEER DURING MANAGED HUNTS. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 30-46, 10 figs. 1968 [1969]. *WR 138: 36*

[Ga. Game & Fish Comm., Atlanta.] The home range data collected provide further evidence of a possible inverse relationship between population density and home range size of deer. The home ranges of all deer studied exhibited considerable overlapping. No seasonal shift in home range location was noted. Radio-tagged deer remained within their telemetrically determined home range when subjected to heavy hunting pressure. Movement data obtained on radio-tagged deer during managed hunts revealed that the daytime movement patterns were different from daytime movements prior to and following the hunts. Generally, deer movement increased as hunting pressure increased.--From abstr.

McDonough, James. THE 1969 MASSACHUSETTS DEER SEASON. *Mass. Wildl.* 21(1): 6-7, illus. Jan.-Feb. 1970. *WR 138: 36*

Hunters harvested 2010 deer during the 1969 season.

Miller, Frank L. ACCIDENTS TO PARTURIENT BLACK-TAILED DEER. *Am. Midland Nat.* 83(1): 303-304. Jan. 1970. *WR 138: 37*

[Canadian Wildl. Serv., 293 Albert St., Ottawa, Ontario, Canada.] Abstract: I observed accidents to four parturient black-tailed deer *(Odocoileus hemionus columbianus)* in the spring of 1964 on the Cedar Creek study area in northwestern Oregon. All four mishaps were of a severity that could have led to prenatal complications or fatalities in the fetuses, yet all of the does gave birth to healthy fawns.

Newsom, John D., and John S. Sullivan, Jr. CRYO-BRANDING--A MARKING TECHNIQUE FOR WHITE-TAILED DEER. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 128-133, 3 figs. 1968 [1969]. *WR 138: 37*

[La. Coop. Wildl. Res. Unit, Baton Rouge.] Details of this technique are outlined. "In summary, our work has indicated that this is an economical, easily applied and permanent marking technique for white-tailed deer."

Nordan, H. C., I. McT. Cowan, and A. J. Wood. THE FEED INTAKE AND HEAT PRODUCTION OF THE YOUNG BLACK-TAILED DEER *(ODOCOILEUS HEMIONUS COLUMBIANUS)*. *Canadian J. Zool.* 48(2): 275-282, 7 figs. Mar. 1970. *WR 138: 37*

[Univ. British Columbia, Vancouver, Canada.]

Olson, John C., and Julius G. Nagy. GASTROINTESTINAL pH VALUES OF MULE DEER. *J. Colo.-Wyo. Acad. Sci.* 6(2): 56. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 37*

Abstract only.

Ommundsen, Peter, and I. McT. Cowan. DEVELOPMENT OF THE COLUMBIAN BLACK-TAILED DEER *(ODOCOILEUS HEMIONUS COLUMBIANUS)* DURING THE FETAL PERIOD. *Canadian J. Zool.* 48(1): 123-132 + 9 figs. on 3 pls. Jan. 1970. *WR 138: 37*

[Selkirk Coll., Castlegar, British Columbia, Canada.] Comparison with fetal growth patterns of the mule deer *(Odocoileus hemionus hemionus)* and the white-tailed deer *(Odocoileus virginianus)* reveals that the subspecies of *hemionus* possesses generally similar patterns. However, both races of this species differ from *virginianus* in a number of features of relative growth. Many structural changes occur at a smaller fetal size in *columbianus* than in *hemionus* or *virginianus* in keeping with the smaller adult size of the former. The heterogonic growth constants of *columbianus* and *hemionus* for five segments upon which comparison can be made are similar, but differ from those of the species *virginianus*. It appears, therefore, that patterns of relative growth are closely similar within the species even where there are considerable differences in mature size of the subspecies. Interspecies differences occur even where ultimate size and general proportions may be similar.--From abstr.

Perry, Charles H. III. THE ECONOMICS OF VIRGINIA'S DEER TRANSPLANTATION PROGRAM. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 142-144. 1968 [1969]. *WR 138: 37*

Malnutrition was not evident in the confined herd. The program did alleviate the overpopulation currently. Costs of $50.00 per head for transplanted deer are reasonable and justified in Virginia.--From abstr.

Prestwood, Annie K., and James F. Smith. DISTRIBUTION OF MENINGEAL WORM *(PNEUMOSTRONGYLUS TENUIS)* IN DEER IN THE SOUTHEASTERN UNITED STATES. *J. Parasitol.* 55(4): 720-725, 1 fig. Aug. 1969. *WR 138: 37*

[Univ. Ga., Athens.] In the southeastern United States, meningeal worm appears to occur mainly in deer of oak-pine subclimax and climax deciduous forest types. It was not found in areas having a sandy soil and a predominantly pine forest.--From abstr.

Robel, Robert J., and Philip G. Watt. COMPARISON OF VOLUMETRIC AND POINT-ANALYSIS PROCEDURES TO DESCRIBE DEER FOOD HABITS. *J. Wildl. Mgmt.* 34(1): 210-213. Jan. 1970. *WR 138: 38*

[Kans. State Univ., Manhattan.] Abstract: This paper describes a comparison of two methods used to measure the percentage contents of white-tailed deer *(Odocoileus virginianus)* stomachs. Both accuracy and the amount of time required for analysis were compared using the standard volumetric technique and a point-analysis method. The point-analysis method saved time only if the investigator was thoroughly familiar with the items in the stomach sample. Heterogeneity of food item size in the stomach samples caused inaccuracies in results produced by the point-analysis method. However, those inaccuracies disappeared when data from several different samples were pooled and the means compared. The point-analysis method offers timesaving advantages when: (1) the investigator can quickly identify all items in the stomach sample, and (2) the mean values of items in the stomachs are desired rather than specific values for individual animals.

Roseberry, J. L., and W. D. Klimstra. PRODUCTIVITY OF WHITE-TAILED DEER ON CRAB ORCHARD NATIONAL WILDLIFE REFUGE. *J. Wildl. Mgmt.* 34(1): 23-28, 1 fig. Jan. 1970. *WR 138: 38*

[Southern Ill. Univ., Carbondale.] Abstract: Fertility of female white-tailed deer *(Odocoileus virginianus)* on Crab Orchard National Wildlife Refuge was determined from examination of 576 reproductive tracts obtained in January, 1966. Over 41 percent of the fawns and 97 percent of the older does were pregnant. Gravid fawns showed an average of 1.00 embryos and 1.19 corpora lutea per doe, yearlings 1.76 and 1.94, and adults 1.93 and 2.24. Ova losses were calculated at 12.9 percent for all pregnant deer, and prenatal losses through the first 6 weeks of gestation were 4.0 percent. The peak of yearling and adult breeding occurred from November 15 to December 5, being highest during November 22-28; most fawns bred 4-5 weeks later.

Samuel, W. M., and D. O. Trainer. *TRICHOSTRONGYLUS AXEI* (COBBOLD, 1879) IN WHITE-TAILED DEER. *J. Parasitol.* 54(6): 1091. Dec. 1968. *WR 138: 38*

[Univ. Wis., Madison.]

Sauer, Peggy R., John E. Tanck, and C. W. Severinghaus. HERBACEOUS FOOD PREFERENCES OF WHITE-TAILED DEER. *N.Y. Fish & Game J.* 16(2): 145-157, 2 figs. July 1969. *WR 138: 38*

Abstract: A study of the use of herbaceous foods by white-tailed deer was made on a 56.8-acre enclosure on the Partridge Run Game Management Area in Albany County (N.Y.). Twenty 0.5-milacre plots were selected, and observations were made during the spring in 1957 and 1958 and during the summer in 1955, 1956, 1957 and 1958. The number of deer present on each occasion was known. Data were analyzed in terms of the degree of use in relation to the degree of availability. Preferred and non-preferred species are listed. Notes on use by animals other than deer, in 1959 and 1962 when no deer were present, are included.

Severinghaus, C. W., and Peggy R. Sauer. ESTIMATED AREA OF DEER HABITAT IN NEW YORK STATE. *N.Y. Fish & Game J.* 16(2): 129-135, 1 fig. July 1969. *WR 138: 38*

[R.D. 2, 4665 Picard Rd., Voorheesville, N.Y.] Abstract: An estimate of the area of deer habitat in New York in 1959 was derived from data on land type and land use. The figures were compiled for each town and are summarized here by county for each of the three major regions of the state apart from Long Island. They are compared with an earlier estimate for 1940 and show an over-all increase of nearly 10 per cent. Only four counties showed a decrease. The increase is attributed primarily to the retirement of land from agriculture and would have been greater had not some 20 per cent of the retired farmland been taken over by suburban expansion.

Tumbleson, M. E., J. D. Cuneio, and D. A. Murphy. SERUM BIOCHEMICAL AND HEMATOLOGICAL PARAMETERS OF CAPTIVE WHITE-TAILED FAWNS. *Canadian J. Comp. Med.* 34(1): 66-71, 10 figs. Jan. 1970. In English with French summ. *WR 138: 39*
[Univ. Mo., Columbia.] Summary: Blood samples were collected, at one day of age and at weekly intervals from one through 25 weeks of age, from seven white-tailed fawns *(Odocoileus virginianus)* to determine the effect of age upon serum biochemical and hematological values. Serum total protein concentration increased continually during the six month period. The rate of anabolism of serum *gamma*-globulin exceeded the rate of catabolism at about seven weeks of age. Serum cholesterol concentration more than doubled from one day to eight weeks of age. Blood hemoglobin concentration and packed cell volume increased markedly during the first eight weeks of life, but tended to remain constant from eight to 25 weeks of age. Blood erythrocyte count increased throughout the duration of the study; however, the relative increase was greater during the first eight weeks of age than thereafter.

MAMMALS--MARINE

Belkovich, V. M., V. I. Borissov, V. S. Gurevich, and N. L. Krushinskaya. [THE ABILITY OF ECHOLOCATION IN *DELPHINUS DELPHIS.*] *Zool. Zhur.* 48(6): 876-884. June 1969. [From J. Mammal. 51(1, suppl.), 1970. In Russian with English summ.] *WR 138: 39*

Best, P. B. A DOLPHIN *(STENELLA ATTENUATA)* FROM DURBAN, SOUTH AFRICA. *Ann. South African Mus.* (Cape Town) 52(5): 121-135 + 7 pls. Mar. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 39*

Best, P. B. THE SPERM WHALE *(PHYSETER CATODON)* OFF THE WEST COAST OF SOUTH AFRICA. 3. REPRODUCTION IN THE MALE. *Invest. Rept., Div. Sea Fisheries* (Cape Town) 72: 1-20. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 39*

Bryden, M. M. GROWTH OF THE SOUTHERN ELEPHANT SEAL, *MIROUNGA LEONINA* (LINN.). *Growth* 33(1): 69-82. Mar. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 39*

Calhaem, I., and D. A. Christoffel. SOME OBSERVATIONS OF THE FEEDING HABITS OF A WEDDELL SEAL, AND MEASUREMENTS OF ITS PREY, *DISSOSTICHUS MAWSONI*, AT McMURDO SOUND, ANTARCTICA. *New Zealand J. Marine Freshwater Res.* 3(2): 181-190. June 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 39*

Cline, David R., Albert W. Erickson, and Robert H. Hofman. ELEPHANT SEAL IN THE WEDDELL SEA. *J. Mammal.* 51(1): 204. Feb. 1970. *WR 138: 39*
[Univ. Minn., Minneapolis.] *"Mirounga leonina."*

Douxchamps, Philippe. LES PHOQUES DE L'ANTARCTIQUE. [THE SEALS OF THE ANTARCTIC.] *Naturalistes Belges* 50(6): 281-297. June-July 1969. [From J. Mammal. 51(1, suppl.), 1970. In French.] *WR 138: 39*

Fedoseev, G. A., and V. N. Goltzev. [AGE-SEXUAL STRUCTURE AND ABILITY OF REPRODUCTION IN THE PACIFIC WALRUS POPULATION.] *Zool. Zhur.* 48(3): 407-413. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Russian with English summ.] *WR 138: 39*

Herman, Louis M., Frank A. Beach III, Ross L. Pepper, and Richard B. Stalling. LEARNING-SET FORMATION IN THE BOTTLENOSE DOLPHIN. *Psychonomic Sci.* 14(3): 98-99. Feb. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 39*

LeBouef, Burney J., and Richard S. Peterson. DIALECTS IN ELEPHANT SEALS. *Science* 166(3913): 1654-1656, 2 figs. 26 Dec. 1969. *WR 138: 40*
[Univ. Calif., Santa Cruz.] Abstract: Threat vocalizations of male elephant seals *Mirounga angustirostris* vary among four populations on islands off the coast of California and Baja California, Mexico. Males at San Nicolas Island in Southern California emit sound pulses at more than double the rate of males at Año Nuevo Island, 528 kilometers north. Mean pulse rates at San Miguel Island and Isla de Guadalupe (408 and 944 kilometers south of Año Nuevo, respectively) are intermediate to these two. Pulse rate is homogeneous within each population and consistent in the same individual. Other properties of the calls which separate populations are pulse duration and embellishment of the initial or terminal pulse in a series. These geographical differences in vocal behavior resemble local dialects in birds and humans.

Marine Mammal Biological Laboratory. FUR SEAL INVESTIGATIONS, 1967. *US F&WS, Spec. Sci. Rept.--Fisheries* no. 597. vii + 104 p., 31 figs. Mar. 1970. *WR 138: 40*
[Sand Point Naval Air Sta., Seattle, Wash.] A kill of 55,720 male seals *(Callorhinus ursinus)* ages 2-6 and 10,471 females was conducted on the Pribilof Islands, Alaska, as part of a continuing study of herd reaction to an artificially low population level. Estimated totals of harem males in 1967 were down 9% and 17% from estimates taken on St. Paul and St. George Islands, respectively, in 1966. Tagging studies indicate that the number of pups born on the Islands decreased steadily from 643,000 in 1960 to 377,000 in 1965. The number of pups born in 1966 was about equal to the estimated 1967 population of 385,000. Pelagic fur seal investigations took place aboard two research vessels off the coasts of Washington, Oregon, and northern California. Pups apparently scatter southward after leaving the Islands, while immature seals may be found in the North Pacific Ocean all year. Salmonidae and herring contributed more than half the total food volume collected from stomachs. Results of the investigations are presented in 48 pages of tables.

Morejohn, G. Victor, and Donald M. Baltz. CONTENTS OF THE STOMACH OF AN ELEPHANT SEAL. *J. Mammal.* 51(1): 173-174. Feb. 1970. *WR 138: 40*
[Moss Landing Marine Labs., Moss Landing, Calif.] *"Mirounga angustirostris."*

Packer, Bernard S., Michael Altman, Carroll E. Cross, H. Victor Murdaugh, Jr., James M. Linta, and Eugene D. Robin. ADAPTATIONS TO DIVING IN THE HARBOR SEAL: OXYGEN STORES AND SUPPLY. *Am. J. Physiol.* 217(3): 903-906. Sept. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 40*

Paul, L. J. DOLPHIN NOISES RECORDED BY ECHO-SOUNDER. *New Zealand J. Marine Freshwater Res.* 3(2): 343-348. June 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 40*

Pilson, Michael E. Q., and David W. Waller. COMPOSITION OF MILK FROM SPOTTED AND SPINNER PORPOISES. *J. Mammal.* 51(1): 74-79. Feb. 1970. *WR 138: 40*
[Univ. R.I., Kingston.] *"Stenella graffmani* and *S. microps."*

Poulter, Thomas C., and Richard A. Jennings. SONAR DISCRIMINATION ABILITY OF THE CALIFORNIA SEA LION, *ZALOPHUS CALIFORNIANUS. Proc. Calif. Acad. Sci.* (14): 381-389. Apr. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 40*

Ridgway, Sam H., B. L. Scronce, and John Kanwisher. RESPIRATION AND DEEP DIVING IN THE BOTTLENOSE PORPOISE. *Science* 166(3913): 1651-1654, 4 figs. 26 Dec. 1969. *WR 138: 40*
[Naval Undersea Res. & Development Center, San Diego, Calif.] Abstract: A bottlenose porpoise [*Tursiops truncatus*] was trained to dive untethered in the open ocean and to exhale into an underwater collecting funnel before surfacing from prescribed depths down to 300 meters. The animal was also taught to hold its breath for periods up to 4 minutes at the surface and then blow in the funnel. Alveolar collapse is probably complete at around 100 meters, and little pulmonary respiratory exchange occurs below that depth. Thoracic collapse was observed visually at 10 to 50 meters and by underwater television to 300 meters.

MAMMALS--MARINE--Continued

Samuels, E. R., M. Cawthorn, B. H. Lauer, and B. E. Baker. STRONTIUM-90 AND CESIUM-137 LEVELS IN TISSUES OF FIN WHALE *(BALAENOPTERA PHYSALUS)* AND HARP SEAL *(PAGOPHILUS GROENLANDICUS)*. *Canadian J. Zool.* 48(2): 267-269. Mar. 1970. *WR 138: 41*
[Dept. Natl. Health & Welfare, Ottawa, Canada.] Abstract: ^{90}Sr and ^{137}Cs were determined in 11 different tissues of the fin whale and 2 different tissues of the harp seal. Muscle tissue in most instances contained more ^{137}Cs than did the other tissues that were examined. The average concentration of ^{137}Cs in whale muscle was 4.5 pCi/g ash and in adult seal muscle was 2.5 pCi/g ash. The highest concentration (3.5 pCi/g ash) of ^{90}Sr was found in whale blubber.

Scheffer, V. B. GROWTH LAYERS IN A DUGONG TOOTH. *J. Mammal.* 51(1): 187-190, 2 figs. Feb. 1970. *WR 138: 41*
[14806 SE 54th St., Bellevue, Wash.]

Sergeant, D. E., and P. F. Brodie. TAGGING WHITE WHALES IN THE CANADIAN ARCTIC. *J. Fisheries Res. Board Canada* 26(8): 2201-2205. Aug. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 41*

Stirling, Ian. DISTRIBUTION AND ABUNDANCE OF THE WEDDELL SEAL IN THE WESTERN ROSS SEA, ANTARCTICA. *New Zealand J. Marine Freshwater Res.* 3(2): 191-200. June 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 41*

Stirling, Ian. ECOLOGY OF THE WEDDELL SEAL IN McMURDO SOUND, ANTARCTICA. *Ecology* 50(4): 573-586, 8 figs. Summer 1969. *WR 138: 41*
[Univ. Adelaide, Adelaide, Australia.] Discusses spacing of individual Weddell seals *(Leptonychotes weddelli)*, also seasonal changes in numbers, seasonal changes in distribution, locations of pupping colonies, fidelity of females to particular colonies, and feeding behavior.--Courtesy/ Paul A. Stewart.

Strange, Ian J. MARINE MAMMALS OF THE FALKLAND ISLANDS. *Pacific Discovery* 22(5): 16-23. Sept.-Oct. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 41*

Tarasevich, M. N. [DISTRIBUTION OF SPERM WHALES IN THE ANTARCTIC WATERS.] *Zool. Zhur.* 48(8): 1207-1213. Aug. 1969. [From J. Mammal. 51(1, suppl.), 1970. In Russian with English summ.] *WR 138: 41*

MAMMALS--OTHER GROUPS

Burton, Clive. SURVEY OF KNYSNA ELEPHANTS BY THE WILD LIFE SOCIETY, 1969. *Eastern Cape Naturalist* (Port Elizabeth) 36: 1-3. Mar. 1969. [From J. Mammal. 51(1, suppl.), 1970.] *WR 138: 41*

Eisenberg, J. F., and Edwin Gould. THE TENRECS: A STUDY IN MAMMALIAN BEHAVIOR AND EVOLUTION. *Smithsonian Contributions Zool.* no. 27. vi + 137 p., 77 figs. 1970. For sale at $3.75 by Supt. Documents. *WR 138: 41*
Tenrecs are found only on the island of Madagascar. The biology of the Tenrecidae is described by field and laboratory studies that focused on comparisons of social behavior and communication in several species. Detailed observations on the behavior of *Echinops, Setifer, Tenrec, Hemicentetes,* and *Microgale* are related to ecological adaptations of each genus.--From abstr.

Rood, Jon P. NOTES ON THE BEHAVIOR OF THE PYGMY ARMADILLO. *J. Mammal.* 51(1): 179. Feb. 1970. *WR 138: 41*
[P.O. Box 38, Richland, Mich.] *"Chamyphorus truncatus."*

Russell, Eleanor M. AGONISTIC INTERACTIONS IN THE RED KANGAROO *(MEGALEIA RUFA)*. *J. Mammal.* 51(1): 80-88. Feb. 1970. *WR 138: 41*
[Univ. New South Wales, P.O. Box 1, Kensington, Australia.]

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MAMMALS--OTHER GROUPS--Continued

Sorenson, M. W. OBSERVATIONS ON THE BEHAVIOR OF *DASYCERCUS CRISTICAUDA* AND *DASYUROIDES BYRNEI* IN CAPTIVITY. *J. Mammal.* 51(1): 123-130. Feb. 1970. *WR 138: 42*
[Univ. Mo., Columbia.]

Taylor, M. E. LOCOMOTION IN SOME EAST AFRICAN VIVERRIDS. *J. Mammal.* 51(1): 42-51, 6 figs. Feb. 1970. *WR 138: 42*
[Univ. Toronto, Toronto, Canada.] Abstract: Twelve species representing nine genera of East African viverrids were studied in captivity and in their natural habitats. Filmed sequences of captive animals showing walking, trotting, running, galloping, jumping, climbing, swimming, and burrowing were studied and are described, and where possible gait formulae are given. The types of locomotion used by different species of viverrids reflect divergent habitats and food preferences.

Tyndale-Biscoe, C. H., and R. F. C. Smith. STUDIES ON THE MARSUPIAL GLIDER, *SCHOINOBATES VOLANS* (KERR). II. POPULATION STRUCTURE AND REGULATORY MECHANISMS. *J. Animal Ecol.* 38(3): 637-649, 4 figs. Oct. 1969. *WR 138: 42*
[Univ. Alberta, Edmonton, Alberta, Canada.]

BIRDS--GENERAL

Fretwell, Stephen D. THE ADJUSTMENT OF BIRTH RATE TO MORTALITY IN BIRDS. *Ibis* 4(111): 624-627. Oct. 1969. *WR 138: 42*
[Kans. State Univ., Manhattan.] "If a population is limited by resources, the exploitation of which is regulated by dominance hierarchies or territoriality, and if the population has an exacting breeding scheme in which different efforts produce young which are assigned to different positions on the dominance hierarchy, then the birth rate should be adjusted to the death rate."

Recher, H. F. BIRD SPECIES DIVERSITY AND HABITAT DIVERSITY IN AUSTRALIA AND NORTH AMERICA. *Am. Nat.* 103(929): 75-80. 1969. [From Bird-Banding 40(4), 1969.] *WR 138: 42*

Wallace, George J. A CHANGING WORLD: BIRDS IN TRANSITION. *Mass. Audubon* 54 (3): 3-10. Mar. 1970. *WR 138: 42*
[Mich. State Univ., East Lansing.] Sprayed orchards, carefully tended formal gardens, and deteriorating waterways provide increasingly poor habitat for native birds and encourages establishment of "pest" species.

BIRDS--TECHNIQUES

Anderson, D. R., and R. S. Pospahala. CORRECTION OF BIAS IN BELT TRANSECT STUDIES OF IMMOTILE OBJECTS. *J. Wildl. Mgmt.* 34(1): 141-146, 3 figs. Jan. 1970. *WR 138: 42*
[Migratory Bird Populations Sta., Laurel, Md.] Abstract: Unless a correction is made, population estimates derived from a sample of belt transects will be biased if a fraction of the individuals on the sample transects are not counted. An approach, useful for correcting this bias when sampling immotile populations using transects of a fixed width, is presented. The method assumes that a searcher's ability to find objects near the center of the transect is nearly perfect. The method utilizes a mathematical equation, estimated from the data, to represent the searcher's inability to find all objects at increasing distances from the center of the transect. An example of the analysis of data, formation of the equation, and application is presented using waterfowl nesting data collected in Colorado.

BIRDS--TECHNIQUES--Continued

Child, George I., and Shirley G. Marshall. A METHOD OF ESTIMATING CARCASS FAT AND FAT-FREE WEIGHT IN MIGRANT BIRDS FROM WATER CONTENT OF SPECIMENS. *Condor* 72 (1): 116-119. Jan. 1970. *WR 138: 43*
[Univ. Ga., Athens.] Courtesy/ Paul A. Stewart.

Emlen, John T. THE 'SQUEAK LURE' AND PREDATOR MOBBING IN WILD BIRDS. *Animal Behaviour* 17(3): 515-516. Aug. 1969. *WR 138: 43*
[Univ. Wis., Madison.] Summary: Spaced repetition of the squeaking sound commonly used by ornithologists to lure birds resulted in a rapid decline in responsiveness. This decline is attributed to habituation in the absence of reinforcement normally obtained by participation in the mobbing of a predator.

Gauthreaux, S. A., Jr. A PORTABLE CEILOMETER TECHNIQUE FOR STUDYING LOW-LEVEL NOCTURNAL MIGRATION. *Bird-Banding* 40(4): 309-320, 4 figs. Oct. 1969. *WR 138: 43*
[Univ. Ga., Athens.] Describes a simple and inexpensive ceilometer which can be used to identify, quantify and determine the direction of nocturnal migrants as they fly through the field of a telescope directed up the light beam.--Courtesy/ Paul A. Stewart.

Jenkinson, Marion Anne, and Robert M. Mengel. A DEVICE FOR HANDLING MIST NETS IN THE DARK. *Bird-Banding* 41(1): 38-39, 1 fig. Jan. 1970. *WR 138: 43*
[Univ. Kans., Lawrence.] The net is inclosed in a snap-on cover enabling two people to set up the net in the dark in less than a minute.--Courtesy/ Paul A. Stewart.

Tramer, Elliot J. BIRD SPECIES DIVERSITY: COMPONENTS OF SHANNON'S FORMULA. *Ecology* 50(5): 927-929, 1 fig. Late Summer 1969. *WR 138: 43*
[Univ. Toledo, Toledo, Ohio.] Species diversity increased with the foliage height diversity. The relative abundance was low in marshes due to presence of colonial nesting birds feeding away from the marshes. The distribution of relative numbers of birds was more even than in trees, herbaceous-shrub communities or phytoplankton.--Courtesy/ Paul A. Stewart.

BIRDS--MORPHOLOGY & PHYSIOLOGY

Anderson, Stanley H. WATER BALANCE OF THE OREGON JUNCO. *Auk* 87(1): 160-163. Jan. 1970. *WR 138: 43*
[Oreg. State Univ., Corvallis.] During a 24-hour period Oregon juncos *(Junco oreganus)* lost 16% of their body weight through respiratory water loss and 30.10% through excretory loss.--Courtesy/ Paul A. Stewart.

Brush, Alan H. ON THE NATURE OF "COTINGIN." *Condor* 71(4): 431-433. Oct. 1969. *WR 138: 43*
[Univ. Conn., Storrs.] The violet color of the contour feathers of *Xipholena punicea* is the result of a combination of structural blues and red carotenoids.--Courtesy/ Paul A. Stewart.

Dolnik, V. R. [BIOENERGETICS OF THE FLYING BIRD.] *Zhur. Obshch. Biol.* 30(3): 273-291. 1969. [From Bird-Banding 41(1), 1970. In Russian with English summ.] *WR 138: 43*

Donham, Richard S., and Fred E. Wilson. PHOTOREFRACTORINESS IN PINEALECTOMIZED HARRIS' SPARROWS. *Condor* 72(1): 101-102. Jan. 1970. *WR 138: 43*
[Mount St. Scholastica Coll., Atchison, Kans.] Pinealectomy did not eliminate photorefractoriness in *Zonotrichia querula* .--Courtesy/ Paul A. Stewart.

Drenckhahn, D. DIE MAUSER DES KAMPLAUFERS, *PHILOMACHUS PUGNAX*, IN SCHLESWIG-HOLSTEIN. [THE MOLT OF THE RUFF IN SCHLESWIG-HOLSTEIN.] *Corax* 2(3): 130-160. 1968. [From Bird-Banding 41(1), 1970. In German.] *WR 138: 43*

Hailman, Jack P. THE CONTINUING PROBLEM OF FAT CLASSES AND A "RULE-OF-THUMB" FOR IDENTIFYING INTERVAL AND RATIO DATA. *Bird-Banding* 40(4): 321-322. Oct. 1969. *WR 138: 44*

[Univ. Wis., Madison.] In estimating and classifying quantity of subcutaneous fat, classes may be ordered along a continuum but the interval between adjacent classes is unknown. The data are ordinal, but are often mistakenly handled as interval or ratio data. An interval or ratio scale of measurement exists only when the act of measuring is one of comparing the unknown attribute with a standard that preserves in some form an internationally standard interval.--Courtesy/ Paul A. Stewart.

Hamner, W. M., and R. J. Barfield. INEFFECTIVENESS OF PINEAL LESIONS ON THE TESTIS CYCLE OF A FINCH. *Condor* 72(1): 99-101. Jan. 1970. *WR 138: 44*

[Univ. Calif., Davis.] Severe pineal lesions produced no obvious effect on photoperiodically induced testicular growth or on photorefractoriness in the house finch *(Carpodacus mexicanus)*.--Courtesy/ Paul A. Stewart.

Heppner, Frank. THE METABOLIC SIGNIFICANCE OF DIFFERENTIAL ABSORPTION OF RADIANT ENERGY BY BLACK AND WHITE BIRDS. *Condor* 72(1): 50-59, 4 figs. Jan. 1970. *WR 138: 44*

[Univ. R.I., Kingston.] Black-dyed zebra finches *(Poephila castanotis)* absorbed 3.1 cal/min more than white birds; white birds had a metabolic heat production 2.7 cal/min greater than the black birds.--Courtesy/ Paul A. Stewart.

Holcomb, Larry C. GROWTH OF NESTLING AMERICAN GOLDFINCHES DEPENDING ON THE NUMBER IN THE NEST AND HATCHING SEQUENCE. *Bird-Banding* 41(1): 11-17. Jan. 1970. *WR 138: 44*

[Creighton Univ., Omaha, Nebr.] There was little difference in the mean growth rates of American goldfinches *(Spinus tristis)* in relation to hatching sequence and number of young in nest, although there was a general tendency for nestlings to grow faster in nests containing fewer siblings.--From summ. Courtesy/ Paul A. Stewart.

Kendeigh, S. Charles. ENERGY RESPONSES OF BIRDS TO THEIR THERMAL ENVIRONMENTS. *Wilson Bull.* 81(4): 441-449, 2 figs. Dec. 1969. *WR 138: 44*

[Univ. Ill., Champaign.] The metabolism of the house sparrow is well suited for the wide distribution of the species. The mathematical model developed during laboratory experimentation with the house sparrow is an attempt at a generalized physiological model for all species showing the interrelations between food intake, standard metabolism, existence metabolism, productive energy, limits of tolerance, evaporative cooling, body temperature, and the thermal environment.--Courtesy/ Paul A. Stewart.

Kendeigh, S. Charles. ENERGY REQUIREMENTS FOR EXISTENCE IN RELATION TO SIZE OF BIRD. *Condor* 72(1): 60-65, 1 fig. Jan. 1970. *WR 138: 44*

[Univ. Ill., Champaign.] Energy requirements for existence metabolism were calculated for 18 spp. of cage birds. Efficiency of body temperature regulation depends on body size and the insulative properties of the plumage.--Courtesy/ Paul A. Stewart.

Kuenzel, Wayne J., and Carl W. Helms. HYPERPHAGIA, POLYDIPSIA, AND OTHER EFFECTS OF HYPOTHALAMIC LESIONS IN THE WHITE-THROATED SPARROW, *ZONOTRICHIA ALBICOLLIS*. *Condor* 72(1): 66-75, 8 figs. Jan. 1970. *WR 138: 44*

[Univ. Ga., Athens.] Lesion-induced weight increases are repeatable phenomena, based on increased food intake leading to massive fat deposition. Increased food intake in lesioned birds is often accompanied by an increased water intake and is associated with disturbances of several facets of the annual cycle, including nocturnal activity, gonadal development and molt.--Courtesy/ Paul A. Stewart.

Marcus, M. B. PLUMAGE AND REPRODUCTIVE CONDITION IN THE MASKED WEAVER *PLOCEUS VELATUS* VIEILLOT. *Rev. Zool. Bot. Africa* 78: 107-111. 1968. [From Auk 87(1), 1970.] *WR 138: 44*

Moreau, R. E. COMPARATIVE WEIGHTS OF SOME TRANS-SAHARAN MIGRANTS AT INTERMEDIATE POINTS. *Ibis* 4(111): 621-624. Oct. 1969. *WR 138: 45*
[Curlews, Sutton St. Nicholas, Herefordshire, England.] Tabulation of mean weights and ranges of 13 spp. of Mediterranean-Saharan migrants netted in transit.

Morton, Martin L., James R. King, and Donald S. Farner. POSTNUPTIAL AND POST-JUVENAL MOLT IN WHITE-CROWNED SPARROWS IN CENTRAL ALASKA. *Condor* 71(4): 376-385, 4 figs. Oct. 1969. *WR 138: 45*
[Occidental Coll., Los Angeles, Calif.] The phenology of the postnuptial and postjuvenal molts in the white-crowned sparrow was ascertained from examination of 500 free-living birds near Fairbanks, Alaska, during 1962. At the same time, the pattern of postnuptial molt was studied in 17 captive adults exposed to natural temperature and photo-period. There were no conspicuous differences between free-living and captive birds, and the data from these groups were combined in the general analysis.--From summ. Courtesy/ Paul A. Stewart.

Ricklefs, Robert E. PRELIMINARY MODELS FOR GROWTH RATES IN ALTRICIAL BIRDS. *Ecology* 50(6): 1031-1039, 4 figs. Autumn 1969. *WR 138: 45*
[Univ. Pa., Philadelphia.] The rate of growth in body weights of birds is not correlated with nestling mortality but is a function of the adult body size of the species and the mode of development of the young.--From abstr. Courtesy/ Paul A. Stewart.

Rijke, A. M. THE WATER REPELLENCY AND FEATHER STRUCTURE OF CORMORANTS, PHALACROCORACIDAE. *J. Exptl. Biol.* 48: 185-189. 1968. [From Bird-Banding 40(4), 1969.] *WR 138: 45*

Schmidt-Nielsen, Knut, John Kanwisher, Robert C. Lasiewski, Jerome E. Cohn, and William L. Bretz. TEMPERATURE REGULATION AND RESPIRATION IN THE OSTRICH. *Condor* 71(4): 341-352, 5 figs. Oct. 1969. *WR 138: 45*
[Duke Univ., Durham, N.C.] The ostrich can maintain its body temperature below 40°C during an 8 hour period while ambient temperatures are as high as 50°C.--From summ. Courtesy/ Paul A. Stewart.

Smith, Robert W., Irene L. Brown, and L. Richard Mewaldt. ANNUAL ACTIVITY PATTERNS OF CAGED NON-MIGRATORY WHITE-CROWNED SPARROWS. *Wilson Bull.* 81(4): 419-440, 10 figs. Dec. 1969. *WR 138: 45*
[San Jose State Coll., San Jose, Calif.] Body weight was inversely related to the mean environmental temperature. The circadian locomotor activity patterns of the birds displayed characteristic morning peaks and somewhat lesser evening peaks. During the spring of 1962 four of the immatures and two adults showed significant amounts of night locomotion activity. Peaks of night activity correlated strongly with brightly moonlit nights.--From summ. Courtesy/ Paul A. Stewart.

Stresemann , E., and V. Stresemann . DIE MAUSER VON *PTYONOPROGNE RUPESTRIS* UND *DELICHON NIPALENSIS*. [THE MOLT OF *PTYONOPROGNE RUPESTRIS* AND *DELICHON NIPALENSIS*.] *J. Ornithol.* 110: 39-52. 1969. [From Ibis 111(4), 1969. In German.] *WR 138: 45*
The comparison between the molting of a migratory and non-migratory martin.

Tschanz, B., P. Ingold, and H. Lengacher. EIFORM UND BRUTERFOLG BEI TROTTELLUMMEN *URIA AALGE AALGE* PONT. [EGG-SHAPE AND BREEDING-SUCCESS IN THE GUILLEMOT, *URIA A. AALGE*.] *Ornithol. Beobachter* 66(2): 25-42. 1969. [From Bird-Banding 41(1), 1970. In German.] *WR 138: 45*

Yarbrough, Charles G. SUMMER LIPID LEVELS OF SOME SUBARCTIC BIRDS. *Auk* 87 (1): 100-110, 4 figs. Jan. 1970. *WR 138: 45*
[Univ. Fla., Gainesville.] Lipid content of dunlins *(Erolia alpina)*, least sandpipers *(E. minutilla)*, and blackpoll warblers *(Dendroica striata)* declined from the time of arrival on the breeding grounds until egg-laying. There were only slight increases in lipid content of the two sandpipers prior to southward migration, and most increase must occur during migration.--Courtesy/ Paul A. Stewart.

BIRDS--BEHAVIOR

Balda, Russell P. FOLIAGE USE BY BIRDS OF THE OAK-JUNIPER WOODLAND AND PONDEROSA PINE FOREST IN SOUTHEASTERN ARIZONA. *Condor* 71(4): 399-412, 8 figs. Oct. 1969. *WR 138: 46*
[Northern Ariz. Univ., Flagstaff.] Height distribution and volume of foliage in the two plant communities are related to vertical distribution, density, and species distribution of the bird population.--Courtesy/ Paul A. Stewart.

Barlow, Jon C., Ross D. James, and Nikki Williams. HABITAT CO-OCCUPANCY AMONG SOME VIREOS OF THE SUBGENUS *VIREO* (AVES: VIREONIDAE). *Canadian J. Zool.* 48(2): 395-398. Mar. 1970. *WR 138: 46*
[Royal Ontario Museum, Toronto, Ontario, Canada.] Abstract: Habitat co-occupancy is reported for the first time between the gray vireo *(Vireo vicinior* Coues*)* and the Bell vireo *(V. belli arizonae* Ridgeway*)* and the former species and the solitary vireo *(V. solitarius plumbeus* Coues*)*. Observations were made in central and northern Arizona. Behavioral and vocal differences facilitate the association between *V. vicinior* and *V. belli arizonae*, but only behavioral differences are seemingly used by *V. vicinior* and *V. solitarius plumbeus*.

Bedard, Jean. THE NESTING OF THE CRESTED, LEAST, AND PARAKEET AUKLETS ON ST. LAWRENCE ISLAND, ALASKA. *Condor* 71(4): 386-398, 11 figs. Oct. 1969. *WR 138: 46*
[Univ. British Columbia, Vancouver, British Columbia, Canada.] The local densities of *Aethia cristatella* and *A. pusilla* are clearly affected by a single habitat characteristic--the size of the rocks on the talus slopes. *A. pusilla* dominates in areas where the average rock size is small, while *A. cristella* nests among large boulders. *Cyclorrhynchus psittacula* nests in semi-decomposed ridges and cliffs, or in vegetation-covered talus slopes.--From summ. Courtesy/ Paul A. Stewart.

Berndt, R., and H. Sternberg. ALTERS- UND GESCHLECHTSUNTERSCHIEDE IN DER DISPERSION DES TRAUERSCHNÄPPERS *(FICEDULA HYPOLEUCA)*. [AGE AND SEX DIFFERENCES IN THE DISPERSION OF PIED FLYCATCHERS.] *J. Ornithol.* 110(1): 22-26. 1969. [From Bird-Banding 40(4), 1969. In German with English summ.] *WR 138: 46*

Bock, Carl E. INTRA- VS. INTERSPECIFIC AGGRESSION IN PYGMY NUTHATCH FLOCKS. *Ecology* 50(5): 903-905. Late Summer 1969. *WR 138: 46*
[Univ. Colo., Boulder.] On foraging behavior and aggressive interactions of pygmy nuthatches *(Sitta pygmaea)*, white-breasted nuthatches *(S. carolinensis)*, and mountain chickadees *(Parus gambeli)*.--Courtesy/ Paul A. Stewart.

Brackbill, Hervey. RED-BELLIED WOODPECKER TAKING BIRD'S EGGS. *Bird-Banding* 40(4): 323-324. Oct. 1969. *WR 138: 46*
[2620 Poplar Dr., Baltimore, Md.] The male woodpecker excavated a hole below and to one side of the entrance to a house sparrow's nest. He carried away two eggs held between the tips of his mandibles.--Courtesy/ Paul A. Stewart.

Brackbill, Hervey. A CAROLINA WREN SHADOW-BOXING. *Wilson Bull.* 81(4): 470. Dec. 1969. *WR 138: 46*
[2620 Poplar Dr., Baltimore, Md.] The Carolina wren sang and pecked at its image in the windowpane behind a feed shelf.--Courtesy/ Paul A. Stewart.

Brosset, A. L'INFLUENCE DU MILIEU SUR L'EVOLUTION DES CHANTS D'OISEAUX: COMMENTAIRES A LA NOTE DE C. CHAPPUIS. [THE INFLUENCE OF THE ENVIRONMENT ON THE EVOLUTION OF BIRD CALLS: COMMENTARY ON THE PAPER OF C. CHAPPUIS.] *Alauda* 37(1): 72-76. 1969. [From Bird-Banding 41(1), 1970. In French.] *WR 138: 46*

Chappuis, C. UN CLINE VOCAL CHEZ LES OISEAUX PALEARCTIQUES: VARIATION TONALE DES VOCALIZATIONS, SOUS DIFFERENTES LATITUDES. [A VOCAL CLINE IN PALEARCTIC BIRDS: PITCH DIFFERENCES OF THE VOCALIZATIONS OF DIFFERENT LATITUDES.] *Alauda* 37(1): 59-71. 1969. [From Bird-Banding 41(1), 1970. In French with English summ.] *WR 138: 46*
Nearly 30 spp. of all kinds of birds (falcon, owls, woodpecker, tits, wren, creeper, wagtail, thrushes, warblers, kinglets, finches, etc.) have a higher-pitched voice in the north.

Curry, James R. RED-BELLIED WOODPECKER FEEDS TUFTED TITMOUSE. *Wilson Bull.* 81(4): 470. Dec. 1969. *WR 138: 47*
[Univ. Okla., Norman.] Courtesy/ Paul A. Stewart.

Davis, William F. ROBIN KILLS SNAKE. *Wilson Bull.* 81(4): 470-471. Dec. 1969. *WR 138: 47*
[423 W. 46th St., Ashtabula, Ohio.] A robin *(Turdus migratorius)* killed a small snake, presumably a garter snake *(Thamnophis sirtalis).*--Courtesy/ Paul A. Stewart.

Dittus, Wolfgang P. J., and Robert E. Lemon. EFFECTS OF SONG TUTORING AND ACOUSTIC ISOLATION ON THE SONG REPERTOIRES OF CARDINALS. *Animal Behaviour* 17 (3): 523-533, 5 figs. Aug. 1969. *WR 138: 47*
[McGill Univ., Montreal, Canada.]

Ebbels, D. L. POLLINATION OF *PUYA CHILENSIS* BY *TURDUS MERULA* IN THE ISLES OF SCILLY. *Ibis* 4(111): 615. Oct. 1969. *WR 138: 47*

Emlen, Stephen T., and Harrison W. Ambrose III. FEEDING INTERACTIONS OF SNOWY EGRETS AND RED-BREASTED MERGANSERS. *Auk* 87(1): 164-165, 1 fig. Jan. 1970. *WR 138: 47*
[Cornell Univ., Ithaca, N.Y.] By swimming and diving as they moved nearer to the shore, loose flocks of red-breasted mergansers *(Mergus serrator)* drove schools of fish into shallow water where they were captured by snowy egrets *(Leucophoyx thula).*--Courtesy/ Paul A. Stewart.

Gage, S. H., C. A. Miller, and L. J. Mook. THE FEEDING RESPONSE OF SOME FOREST BIRDS TO THE BLACK-HEADED BUDWORM. *Canadian J. Zool.* 48(2): 359-366, 6 figs. Mar. 1970. *WR 138: 47*
[Dept. Fisheries & Forestry, Fredericton, New Brunswick.] Abstract: The predatory effect of nine species of forest birds on the large-larval and pupal stages of the black-headed budworm was investigated for 3 years. Successive bird collections and subsequent gizzard analyses within a season permitted the development of response curves that show changes in consumption in relation to changes in prey size, density, and other characteristics within the season. Percentage predation varied from 3 to 14% over the 3 years and strongly suggested that birds act in a density-dependent manner.

Gibb, J. A. THE TURNING DOWN OF MARKED EGGS BY GREAT TITS. *Bird-Banding* 41 (1): 40-41. Jan. 1970. *WR 138: 47*
[DSIR, P.O. Box 30466, Lower Hutt, New Zealand.] Great tits *(Parus major)* apparently turned down marks placed on their eggs.--Courtesy/ Paul A. Stewart.

Gnielka, Reinhard. ZUR PHÄNOLOGIE DES HERBSTGESANGES UND DER HERBSTBALZ. [ON THE PHENOLOGY OF AUTUMNAL SINGING AND PAIRING.] *Ornithol. Mitteil.* 21(10): 205-207. Oct. 1969. In German. *WR 138: 47*
[Huttenstrasse, Halle/Salle, Germany.]

Gobeil, Robert E. VOCALIZATIONS OF THE SAVANNAH SPARROW. *Bird-Banding* 41 (1): 18-21, 1 fig. Jan. 1970. *WR 138: 47*
[St. Francis Coll., Biddeford, Maine.] Primary vocalizations recorded included a primary song, a possible flight song, and four basic notes: alarm note, hostile note, call note, and food note.--From summ. Courtesy/ Paul A. Stewart.

Goldberg, Maury. BLACK-CAPPED CHICKADEE TAKES OVER BLUEBIRD NEST. *Loon* 41 (4): 131. Dec. 1969. *WR 138: 47*
[1915 Palace Ave., St. Paul, Minn.]

Haverschmidt, F. THE NEST OF THE RED-BREASTED BLACKBIRD. *Auk* 87(1): 167. Jan. 1970. *WR 138: 47*
[Wolfskuilstraat 16, Ommen, Holland.] Reports that *Leistes militaris* builds open rather than domed nests.--Courtesy/ Paul A. Stewart.

Heckenlively, Donald B. SONG IN A POPULATION OF BLACK-THROATED SPARROWS. *Condor* 72(1): 24-36, 8 figs. Jan. 1970. *WR 138: 48*

[N. Mex. State Univ., Las Cruces.] Songs of black-throated sparrows *(Amphispiza bilineata)* are more variable than songs of other emberigines in song duration and frequency range. Factors apparently important in the song variation are the lack of closely-related sympatric species and reduced numbers of bird species in desert scrub habitat. Large territories appear to encourage selection for variation in overall pattern and for acoustical territorial defense.--From summ. Courtesy/ Paul A. Stewart.

Hubbard, John P., and Claudia L. Hubbard. FORAGING BEHAVIOR IN THE BLUE FLYCATCHER. *Auk* 87(1): 154-156, 1 fig. Jan. 1970. *WR 138: 48*

[Rockbridge Alum Springs Biol. Lab., Goshen, Va.] Wing flitting and tail fanning by the blue flycatcher *(Elminia longicauda)* appears to be this bird's means of flushing insects.--Courtesy/ Paul A. Stewart.

Krapivnyi, A. P., and V. V. Turchaninov. [ECOLOGICAL EVIDENCE OF ADAPTIVE FORMS OF AVIAN BEHAVIOR IN RESPONSE TO STATIONARY FOOD STIMULI.] *Zool. Zhur.* 48 (5): 717-721. 1969. [From Bird-Banding 41(1), 1970. In Russian with English summ.] *WR 138: 48*

Löhrl, H. DAS NESTHÄKCHEN ALS BIOLÖGISCHES PROBLEM. [THE RUNT OF THE NEST AS A BIOLOGICAL PROBLEM.] *J. Ornithol.* 109(4): 383-395. 1968. [From Bird-Banding 40(4), 1969. In German with English summ.] *WR 138: 48*

Meanley, Brooke. HEAD-SCRATCHING METHOD OF THE SWAINSON'S WARBLER. *Auk* 87 (1): 163. Jan. 1970. *WR 138: 48*

[Patuxent Wildl. Res. Center, Laurel, Md.] Three Swainson's warblers *(Limnothlypis swansonii)* used the direct method, bringing the foot forward and under the wing.--Courtesy/ Paul A. Stewart.

Netting, M. Graham. DOES THE ROBIN EAT DeKAY'S SNAKE? *Wilson Bull.* 81(4): 471. Dec. 1969. *WR 138: 48*

[Carnegie Mus., Pittsburgh, Pa.] A robin *(Turdus migratorius)* killed but did not eat a small DeKay's snake *(Storeria dekayi)*.--Courtesy/ Paul A. Stewart.

Nickell, Walter P. UNUSUAL NESTING HABITATS OF THREE BIRD SPECIES IN RONDEAU PROVINCIAL PARK, ONTARIO. *Wilson Bull.* 81(4): 454-459, 1 fig. Dec. 1969. *WR 138: 48*

[Cranbrook Inst. Sci., Bloomfield Hills, Mich.] Brown-headed cowbirds *(Molothrus ater)*, catbirds *(Dumetella carolinensis)*, and yellow warblers *(Dendroica petechia)* nested in mature beech-maple forest.--Courtesy/ Paul A. Stewart.

Ouellet, Henri. FURTHER OBSERVATIONS ON THE FOOD AND PREDATORY HABITS OF THE GRAY JAY. *Canadian J. Zool.* 48(2): 327-330. Mar. 1970. In English with French abstr. *WR 138: 48*

[McGill Univ., Montreal, Quebec, Canada.] Abstract: The gray jay *(Perisoreus canadensis)* has been observed feeding on a variety of items ranging from several types of animal carcasses to axle grease and dried fruits. Other observations pertain to its predation on nests and young of several species of birds and on certain small mammals in the coniferous forest. It is suggested that this bird may be an important predator and scavenger, the role of which is still mostly undetermined.

Plucinski, Alfons. ZUR NAHRUNGSAUFNAHME DES TANNENHÄHERS. [ON FOOD-TAKING OF THE NUTCRACKER.] *Ornithol. Mitteil.* 22(1): 3-4 + 1 pl. Jan. 1970. In German. *WR 138: 48*

[2 Breslauer Strasse, Goslar, Germany.] *"Nucifraga caryocatactes."*

Pulich, Warren M. UNUSUAL FEEDING BEHAVIOR OF THREE SPECIES OF BIRDS. *Wilson Bull.* 81(4): 472. Dec. 1969. *WR 138: 49*
[Univ. Dallas, University of Dallas Station, Texas.] Blue jays *(Cyanocitta cristata)* fed on wasps *(Polistes exclamans)*, meadowlarks *(Sturnella* sp.*)* fed on a road-killed skunk *(Mephitis mephitis)*, and boat-tailed grackles *(Cassidix mexicanus)* soaked dry dog food before eating it.--Courtesy/ Paul A. Stewart.

Raitt, Ralph J., and John William Hardy. RELATIONSHIPS BETWEEN TWO PARTLY SYMPATRIC SPECIES OF THRUSHES *(CATHARUS)* IN MEXICO. *Auk* 87(1): 20-57, 15 figs. Jan. 1970. *WR 138: 49*
[N. Mex. State Univ., Las Cruces.] Compares ecology, behavior, and vocalizations of two species of nightingale-thrushes, *Catharus occidentalis* and *C. frantzii*.--Courtesy/ Paul A. Stewart.

Short, Lester L., Jr. OBSERVATIONS OF THE NUTHATCHLIKE WHITE-THROATED TREERUNNER *(PYGARRHICHAS ALBOGULARIS)* IN ARGENTINA. *Condor* 71(4): 438-439. Oct. 1969. *WR 138: 49*
[Am. Mus. Nat. Hist., New York, N.Y.] Feeding behavior is similar to that of nuthatches (Sittidae).--Courtesy/ Paul A. Stewart.

Short, Lester L. FORAGING ASSOCIATION OF GREEN-BARRED FLICKERS AND CAMPO FLICKERS IN ARGENTINA. *Wilson Bull.* 81(4): 468-470. Dec. 1969. *WR 138: 49*
[Am. Mus. Nat. Hist., New York, N.Y.] Green-barred flickers *(Colaptes melanchloros)* and campo flickers *(C. campestris)* were observed feeding at the same foraging sites.--Courtesy/ Paul A. Stewart.

Sick, Helmut. NOTES ON BRAZILIAN CRACIDAE. *Condor* 72(1): 106-108. Jan. 1970. *WR 138: 49*
[Mus. Nacl., Rio de Janeiro, Brazil.] Notes on biology and behavior of the red-billed curassow *(Crax blumenbachii)* and nocturnal curassow *(C. urumutum)*.--Courtesy/ Paul A. Stewart.

Slessers, M. BATHING BEHAVIOR OF LAND BIRDS. *Auk* 87(1): 91-99, 5 figs. Jan. 1970. *WR 138: 49*
[Route 4, Box 127A, Brandywine, Md.] The availability of water, its type, and surroundings contribute considerably to the development of local bathing habits. These habits are most clearly pronounced in permanent residents, notably in birds with restricted territory.--Courtesy/ Paul A. Stewart.

Sudhaus, Walter. UFERSCHWALBEN *(RIPARIA RIPARIA)* ALS MAUERBRÜTER. [BANK SWALLOWS *(RIPARIA RIPARIA)* USING WALLS FOR BREEDING SITES.] *Ornithol. Mitteil.* 22(1): 4-7, 2 figs. Jan. 1970. In German. *WR 138: 49*
[86 Habsburger Strasse, Freiburg, Germany.]

Terborgh, John, and John S. Weske. COLONIZATION OF SECONDARY HABITATS BY PERUVIAN BIRDS. *Ecology* 50(5): 765-782, 5 figs. Late Summer 1969. *WR 138: 49*
[Univ. Md., College Park.] Classifies species for their tendency to invade areas with secondary vegetation and considers species diversity in relation to foliage height.--Courtesy/ Paul A. Stewart.

Thompson, Travis. CONDITIONED AVOIDANCE OF THE MOBBING CALL BY CHAFFINCHES. *Animal Behaviour* 17(3): 517-522, 3 figs. Aug. 1969. *WR 138: 49*
[Univ. Cambridge, Cambridge, England.]

Thompson, William L. SONG VARIATION IN A POPULATION OF INDIGO BUNTINGS. *Auk* 87(1): 58-71, 7 figs. Jan. 1970. *WR 138: 49*
[Wayne State Univ., Detroit, Mich.] Sound spectrograms of the songs of 82 male indigo buntings *(Passerina cyanea)* revealed that most individuals had variations in their songs.--Courtesy/ Paul A. Stewart.

Westcott, Peter W. RELATIONSHIPS AMONG THREE SPECIES OF JAYS WINTERING IN SOUTHEASTERN ARIZONA. *Condor* 71(4): 353-359, 1 fig. Oct. 1969. *WR 138: 50*
[Univ. Fla., Gainesville.] Discusses seasonal movements, winter flocking behavior, and feeding behavior of *Aphelocoma coerulescens, A. ultramarina,* and *Cyanocitta stelleri.*--Courtesy/ Paul A. Stewart.

Willis, Edwin O. ON THE BEHAVIOR OF FIVE SPECIES OF *RHEGMATORHINA*, ANT-FOLLOWING ANTBIRDS OF THE AMAZON BASIN. *Wilson Bull.* 41(4): 363-395, 8 figs. + 1 pl. Dec. 1969. *WR 138: 50*
[Oberlin Coll., Oberlin, Ohio.] Discusses calls, postures, wandering, foraging, maintenance activities, reactions to danger, agonistic behavior, reproductive behavior, and young.--Courtesy/ Paul A. Stewart.

Wolf, Larry L. THE IMPACT OF SEASONAL FLOWERING ON THE BIOLOGY OF SOME TROPICAL HUMMINGBIRDS. *Condor* 72(1): 1-14, 6 figs. Jan. 1970. *WR 138: 50*
[Syracuse Univ., Syracuse, N.Y.] Territoriality is brief, and is limited to the immediate feeding area of the dominant bird. This may consist of individual distance perimeters around a single blossom or may include an entire flowering tree or plant, depending upon the amount of food available. The hummingbird species are not thought to be important as pollinators, as a closer relationship between plants and insects exists. Apparently the hummingbirds have secondarily entered a coevolving system of plants and their insect pollinators, and have not been important selective agents in determining the timing of reproductive activity among the plant species.--Courtesy/ Paul A. Stewart.

Yarrow, Ruth M. RECURRENT USE OF TERRITORIES BY INDIVIDUAL AMERICAN REDSTARTS. *Wilson Bull.* 81(4): 471. Dec. 1969. *WR 138: 50*
[Cornell Univ., Ithaca, N.Y.] Male American redstarts *(Setophaga ruticilla)* returned to breed in the same territory in successive years.--Courtesy/ Paul A. Stewart.

BIRDS--MIGRATION & BANDING REPORTS

Alnås, I., and A. Larsson. [THE ACTIVITIES AT OTTENBY BIRD STATION 1963 AND 1964. REPORT NO. 48.] *Vår Fågelvärld* 28: 9-17. 1969. [From Auk 87(1), 1970. With English summ.] *WR 138: 50*

Chernikin, E. M. [MIGRATION OF NUTCRACKERS IN CISBAIKAL.] *Okhota & Okhotnich'e Khoz.* 1969(3): 20-21. 1969. [From Bird-Banding 40(4), 1969. In Russian.] *WR 138: 50*

Christensen, N. H., and J. R. Jacobsen. "HEADWIND MIGRATION." *Dansk Ornithol. Foren. Tidsskr.* 62: 153-159. 1969. [From Auk 87(1), 1970.] *WR 138: 50*

Curtis, Steve. WEATHER PATTERNS & SPRING MIGRATION. *Passenger Pigeon* 30(4): 151-159, 5 figs. Winter 1969. *WR 138: 50*
Observations during spring migration in 1963, 1964, and 1966 indicate that the majority of species studied tend to respond similarly to a given weather situation. The birds tend to migrate with the clear skies and southerly winds that occur to the west of a high pressure center.

Hildén, Olavi. ACTIVITIES OF FINNISH BIRD STATIONS IN 1968. *Ornis Fennica* 46(4): 179-187, 2 figs. 1969. In English with Finnish summ. *WR 138: 50*
[Långvik, Jorvas, Finland.]

Kistyakovskii, A. B., L. I. Kotkova, and L. A. Smogorzhevskii. [THE RETURN OF THE SWALLOW *(HIRUNDO RUSTICA)* FROM WINTER QUARTERS.] *Vestnik Zool.* 3(1): 50-52. 1969. [From Bird-Banding 40(4), 1969. In Russian with English summ.] *WR 138: 50*
"Hirundo rustica."

Mikheev, A. V. [THE ORIGIN OF PALEARCTIC BIRD MIGRATION.] *Zhur. Obshch. Biol.* 30(1): 72-79. 1969. [From Bird-Banding 40(4), 1969. In Russian with English summ.] *WR 138: 51*

Moldenhauer, Ralph R., and Kelly B. Bryan. AN INTERESTING RECOVERY OF A BANDED EVENING GROSBEAK DURING THE 1968-69 WINTER INCURSION INTO EAST TEXAS. *Bird-Banding* 41(1): 39. Jan. 1970. *WR 138: 51*
[Sam Houston State Univ., Huntsville, Texas.] An evening grosbeak *(Hesperiphona vespertina)* was banded in Virginia and recaptured three years later in Texas.--Courtesy/ Paul A. Stewart.

Munteanu, D. BIRD MIGRATION IN RUMANIA. *Bull. British Ornithol. Club* 89: 33-35. 1969. [From Auk 87(1), 1970.] *WR 138: 51*

Niles, David M., Sievert A. Rohwer, Jerome A. Jackson, and Jerome D. Robins. AN OBSERVATION OF MIDWINTER NOCTURNAL MOVEMENT AND TOWER MORTALITY OF TREE SPARROWS. *Bird-Banding* 40(4): 322-323. Oct. 1969. *WR 138: 51*
[Univ. Kans., Lawrence.] Tree sparrows *(Spizella arborea)* moved farther southward in late January following a heavy snowfall.--Courtesy/ Paul A. Stewart.

Paevskii, V. A. [BRAMBLING MIGRATION ON THE COURISH SPIT PER TRAPPING AND BANDING DATA.] *Migratsii Zhivotnykh* 5: 153-160. 1968. [From Bird-Banding 40 (4), 1969. In Russian.] *WR 138: 51*

Pennycuick, C. J. THE MECHANICS OF BIRD MIGRATION. *Ibis* 4(111): 525-556, 18 figs. Oct. 1969. *WR 138: 51*
[Univ. Coll. Nairobi, P.O. Box 30197, Nairobi, Kenya.] A theoretical approach to determining the distances a migrating bird can fly on a given amount of fuel in relation to the speed at which the bird flies and the rate at which it uses up fuel.

Perdeck, A. C., and B. J. Speek. RINGVERSLAG VAN HET VOGELTREKSTATION. [BANDING REPORT FROM THE MIGRATORY BIRD STATION.] *Limosa* 41: 118-142. 1968. [From Auk 87(1), 1970. In Dutch with English summ.] *WR 138: 51*

Rabøl, J. ORIENTATION OF AUTUMN MIGRATING GARDEN WARBLERS *(SYLVIA BORIN)* AFTER DISPLACEMENT FROM WESTERN DENMARK (BLÅVAND) TO EASTERN SWEDEN (OTTENBY). A PRELIMINARY EXPERIMENT. *Dansk Ornithol. Foren. Tidsskr.* 63(2): 93-104. 1969. [From Bird-Banding 41(1), 1970.] *WR 138: 51*

Roos, G. [BANDING ACTIVITIES AT FALSTERBO BIRD STATION 1965-1967. REPORT NO. 39.] *Vår Fågelvärld* 28: 18-44. 1969. [From Auk 87(1), 1970. With English summ.] *WR 138: 51*

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"Pelecanus onocrotalis and *Phalacrocorax pygmaeus."*

Schifferli, Alfred. SCHWEIZERISCHE RINGFUNDMELDUNG FÜR 1965 UND 1966. [SWISS BANDING-RETURNS FOR 1965 AND 1966.] *Ornithol. Beobachter* 64: 171-197. Dec. 1967. In German. *WR 138: 51*

Schifferli, Alfred. BERICHT DER SCHWEIZERISCHEN VOGELWARTE SEMPACH FÜR DIE JAHRE 1965 UND 1966. [REPORT ON THE SWISS ORNITHOLOGICAL STATION SEMPACH FOR THE YEARS 1965 AND 1966.] *Ornithol. Beobachter* 64: 152-171. Dec. 1967. In German. *WR 138: 51*

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Sick, H. VOGELWANDERUNGEN IM KONTINENTALEN SÜDAMERIKA. [BIRD MIGRATIONS IN CONTINENTAL SOUTH AMERICA.] *Vogelwarte* 24: 219-243. 1968. [From Auk 87(1), 1970. In German with English summ.] *WR 138: 52*
Review paper.

Steidinger, P. RADARBEOBACHTUNGEN ÜBER DIE RICHTUNG UND DEREN STREUUNG BEIM NÄCHTLICHEN VOGELZUG IM SCHWEIZERISCHEN MITTELLAND. [RADAR OBSERVATIONS OF DIRECTION AND DIRECTIONAL SCATTER OF NIGHT MIGRATION IN SWITZERLAND.] *Ornithol. Beobachter* 65(6): 197-226. 1968. [From Bird-Banding 40(4), 1969. In German with English summ.] *WR 138: 52*

Štromar, L. [BIRD-BANDING IN 1963 AND 1964: 1. RESULTS OF THE BIRD-BANDING CARRIED OUT BY THE ORNITHOLOGICAL DEPARTMENT OF THE BIOLOGICAL INSTITUTE OF THE UNIVERSITY IN ZAGREB, XVTH REPORT: 2. FOREIGN RECOVERIES MADE IN YUGOSLAVIA, XIITH REPORT.] *Larus* 19(1965): 5-43. 1967. [From Auk 87(1), 1970. In Serbo-Croatian with English summ.] *WR 138: 52*

Wiltschko, W. ÜBER DEN EINFLUSS STATISCHER MAGNETFELDER AUF DIE ZUGORIENTIERUNG DER ROTKELCHEN *(ERITHACUS RUBECULA)*. [ON THE INFLUENCE OF A STATIC MAGNETIC FIELD ON THE ORIENTATION OF THE ROBIN.] *Z. Tierpsychol.* 25: 537-558. 1968. [From Bird-Banding 40(4), 1969. In German with English summ.] *WR 138: 52*

BIRDS--MANUALS, FAUNAS, COMMUNITIES

Adam, Gerhard. BEITRÄGE ZUR VOGELWELT DES RHEINDELTAS AM BODENSEE. [CONTRIBUTIONS TO THE AVIFAUNA OF THE DELTA OF THE RHINE AT LAKE CONSTANCE.] *Ornithol. Mitteil.* 22(1): 16-19. Jan. 1970. In German. *WR 138: 52*
[75 Moselstrasse, Stuttgart, Germany.]

Bell, H. L. FIELD NOTES ON THE BIRDS OF THE OK TEDI RIVER DRAINAGE, NEW GUINEA. *Emu* 69(4): 193-211, [2 figs.]. Dec. 1969. *WR 138: 52*
[21 Jagara St., Aranda, Australian Capital Territory.] An annotated list of the birds observed in the drainage area of the Ok Tedi River in southern New Guinea during March-May 1966.

Blagosklonov, K. N. [NESTING TREES OF WOODPECKERS IN DIFFERENT FOREST TYPES.] *Ornitologiya* 9: 95-102. 1968. [From Bird-Banding 40(4), 1969. In Russian.] *WR 138: 52*
"Dendrocopus major, D. minor, D. medius, D. leucotos, Dryocopus martius, Picus viridis, and *Picoides tridactylus."*

Cameron, A. W. BIRDS OF THE ST. PIERRE ET MIQUELON ARCHIPELAGO. *Naturaliste Canadien* 94: 389-420. 1967. [From Ibis 111(4), 1969.] *WR 138: 52*

Croft, Joseph E. NOTES FROM THE SOUTHEASTERN MOUNTAINS. *Ky. Warbler* 45(4): 67-81. Nov. 1969. *WR 138: 52*
Observations on distribution, habitat preferences, effects of strip mining, and behavior of some of the 97 spp. of birds recorded in southeastern Kentucky during early summer.

Dement'ev, G. P., N. A. Gladkov, and others. BIRDS OF THE SOVIET UNION. VOLUME V. *Published for Smithsonian Institution and the National Science Foundation, Washington, D.C., by the Israel Program for Scientific Translations* (Jerusalem). TT 67-51406. xxii + 957 p., 162 figs., 144 maps. 1970. Russian original published by Gosudarstvennoe Izdat. "Sovetskaya Nauka" (Moscow) in 1954. [Translation available from U.S. Dept. Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.] *WR 138: 52*
Species accounts of the following families of Passeriformes: Corviidae, Dicruridae, Sturnidae, Oriolidae, Fringillidae, Ploceidae, Emberizidae, Alaudidae, Motacillidae, Sittidae, Paridae and Paradoxornithidae.

Dinsmore, James J., and Richard P. ffrench. BIRDS OF ST. GILES ISLANDS, TOBAGO. *Wilson Bull.* 81(4): 460-463. Dec. 1969. *WR 138: 53*
[Univ. Fla., Gainesville.] Notes on the occurrence of more than 30 spp.--Courtesy/ Paul A. Stewart.

Eber, Gisela. BRUTVOGELBESTANDSAUFNAHMEN IM NATURSCHUTZGEBIET "EMSDETTENER VENN"--EIN BEITRAG ZUR DISKUSSION ÜBER QUANTITATIVE ERFASSUNGSMETHODEN. [BREEDING BIRD INVENTORY IN THE NATURE RESERVE "EMSDETTENER VENN"--A CONTRIBUTION FROM THE DISCUSSION OF QUANTITATIVE METHODS.] *Beiträge Angewandten Vogelkunde* 5: 83-124, 2 figs. + 2 pls. 1968. In German. *WR 138: 53*

ffrench, R. P. THE AVIFAUNA OF SAUT D'EAU ISLAND. *J. Trinidad Field Naturalists' Club* 1969: 29. 1969. [From Auk 87(1), 1970.] *WR 138: 53*

Friedmann, H., and K. E. Stager. RESULTS OF THE 1968 AVIL EXPEDITION TO MT. NYIRU, SAMBURU DISTRICT, KENYA. ORNITHOLOGY. *Los Angeles Co. Mus. Contrib. Sci.* no. 174. 30 p. 1969. [From Auk 87(1), 1970.] *WR 138: 53*

Garrido, Orlando H., and Florentino Garcia Montaña. NUEVOS REPORTES DE AVES PARA CUBA. [NEW REPORTS OF BIRDS FOR CUBA.] *Torreia* (nueva ser.) no. 4. p. 3-13. 30 Dec. 1968. In Spanish. *WR 138: 53*
[Inst. Biol. Acad. Cienc. Cuba, Havana, Cuba.]

Hayward, K. C. FAUNA DEL NOROESTE ARGENTINO. 1. LAS AVES DE GUAYAPA (LA RIOJA). [FAUNA OF NORTHWEST ARGENTINA. 1. THE BIRDS OF GUAYAPA (LA RIOJA).] *Acta Zool. Lilloana* (Tucumen, Argentina) 22: 211-220. 1967. [From Auk 87(1), 1970. In Spanish with English summ.] *WR 138: 53*

Irving, Laurence, C. Peter McRoy, and John J. Burns. BIRDS OBSERVED DURING A CRUISE IN THE ICE-COVERED BERING SEA IN MARCH 1968. *Condor* 72(1): 110-112, 1 fig. Jan. 1970. *WR 138: 53*
[Univ. Alaska, College.] Notes on 12 species.--Courtesy/ Paul A. Stewart.

Kobus, Dieter. VOGELKINDLICHE BEOBACHTUNGEN AM CHIEMSEE. [ORNITHOLOGICAL OBSERVATIONS ON LAKE CHIEM (SOUTHEASTERN BAVARIA.] *Ornithol. Mitteil.* 21(11): 231-238, 4 figs. Nov. 1969. In German. *WR 138: 53*
[16 Am Wackenbach, Leuna, Germany.]

Manikowski, Stanisław. PTAKI OBSERWOWANE W SŁOWIŃSKIM PARKU NARODOWYM. [BIRDS OBSERVED IN THE SŁOWIŃSKI NATIONAL PARK.] *Ochrona Przyrody* 34: 161-184, 8 figs. 1969. In Polish with English summ. *WR 138: 53*
[Jagellonian Univ., Kraków, Poland.] Annotated list of 173 bird species.

Moltoni, E. GLI UCCELLI DELL'ARCIPELAGO PONZIANO (MAR MEDITERRANEO). [THE BIRDS OF THE PONZIANO ARCHIPELAGO (MEDITERRANEAN SEA).] *Riv. Ital. Ornithol.* 38: 301-426. 1968. [From Auk 87(1), 1970. In Italian.] *WR 138: 53*

Narver, David W. BIRDS OF THE CHIGNIK RIVER DRAINAGE, ALASKA. *Condor* 72(1): 102-105, 1 fig. Jan. 1970. *WR 138: 53*
[Fisheries Res. Board Canada, Nanaimo, British Columbia, Canada.] Annotated list of more than 60 spp.--Courtesy/ Paul A. Stewart.

O'Neill, J. P. DISTRIBUTIONAL NOTES ON THE BIRDS OF PERU, INCLUDING TWELVE SPECIES PREVIOUSLY UNREPORTED FROM THE REPUBLIC. *Occas. Pap. Mus. Zool. La. State Univ.* no. 37. p. 1-11. 1969. [From Auk 87(1), 1970.] *WR 138: 53*

Orians, Gordon H., and Dennis R. Paulson. NOTES ON COSTA RICAN BIRDS. *Condor* 71(4): 426-431. Oct. 1969. *WR 138: 53*
[Univ. Wash., Seattle.] Annotated list of 80 spp.--Courtesy/ Paul A. Stewart.

Piechocki, R. BEITRAGE ZUR AVIFAUNA DER MONGOLEI. TEIL I. NON-PASSERIFORMES. [CONTRIBUTION TO THE AVIFAUNA OF MONGOLIA. PART I. NON-PASSERINE BIRDS.] *Mitt. Zool. Mus. Berlin* 44: 149-292. 1968. [From Auk 87(1), 1970. In German.] *WR 138: 54*

Rucner, R. BEITRAG ZUR QUALITATIVEN UND QUANTITATIVEN BESTANDSAUFNAHME DER ORNIS IN EINIGEN WALDGESELLSCHAFTEN WESTKROATIENS. [CONTRIBUTIONS TO THE QUALITATIVE AND QUANTITATIVE ENUMERATION OF BIRDS IN SOME WOODED COMMUNITIES IN WESTERN CROATIA.] *Larus* 19(1965): 44-85. 1967. [From Auk 87(1), 1970. In Serbo-Croatian with German summ.] *WR 138: 54*

Rucner, R. BEITRAG ZUR KENNTNISS DER ÖKOLOGISCHEN BEDEUTUNG DER ORNIS AUS DER UMGEBUNG VON KLENJEC IN HRVATSKO ZAGORJE. [CONTRIBUTIONS TO THE KNOWLEDGE OF THE ECOLOGICAL IMPORTANCE OF THE AVIFAUNA IN THE VICINITY OF KLENJEC IN CROATIA.] *Larus* 19(1965): 86-106. 1967. [From Auk 87(1), 1970. In Serbo-Croatian with German summ.] *WR 138: 54*

Ruschi, A. LISTA ACTUAL DAS AVES DO ESTADO DO ESP. SANTO (BRASIL). [CURRENT LIST OF THE BIRDS OF THE STATE OF ESPIRITO SANTO, BRAZIL.] *Bol. Mus. Biol. Prof. Mello Leitão, Zool.* no. 28A: 1-45. 1967. [From Auk 87(1), 1970. In Portuguese with English summ.] *WR 138: 54*
A list of 709 spp. and sspp.

Saghy, Antal. NÉHÁNY ADAT A GERECSE-HEGYSÉG RITKÁBB MADARAIRÓL. [DATA COVERING MORE SCARCE BIRDS OF THE MOUNTAINS OF "GERECSE".] *Aquila* 75: 273-279. 1968. In Hungarian and English. *WR 138: 54*

Schnebel, Gunther. DIE VOGELWELT EINER PARKLANDSCHAFT IM WINTER / EINE DARSTELLUNG ÖKOLOGISCHER BEZIEHUNGEN IM WINTER. [THE AVIFAUNA OF A PARKLAND AREA IN WINTER / A DESCRIPTION OF ECOLOGICAL RELATIONS DURING WINTER.] *Ornithol. Mitteil.* 21(12): 245-251, illus. Dec. 1969. In German. *WR 138: 54*
[3 Dannenriede, Uelzen, Germany.]

Schonhardt, Hans. ZUR VOGELWELT DES SCHWARZWALDES. 3. TEIL. [ON THE AVIFAUNA OF THE BLACK FOREST. PART 3.] *Ornithol. Mitteil.* 21(10): 203-204. Oct. 1969. In German. *WR 138: 54*
[Kriegstrasse, Karlsruhe, Germany.] Turdidae through Fringillidae.

Sick, H. ÜBER IN SÜDAMERIKA EINGEFÜHRTE VOGELARTEN. [ON THE INTRODUCED BIRDS TO SOUTH AMERICA.] *Bonn. Zool. Beitr.* 19: 298-306. 1968. [From Auk 87(1), 1970. In German with English summ.] *WR 138: 54*

Smith, P. A. OBSERVATIONS FROM THE INTERIOR OF MUSCAT AND OMAN DURING 1966-67. *Bull. British Ornithol. Club* 89: 52-60. 1969. [From Auk 87(1), 1970.] *WR 138: 54*
Lists 75 spp. of birds identified during all four seasons.

Steinbacher, J. WEITERE BEITRÄGE ÜBER VÖGEL VON PARAGUAY. [FURTHER CONTRIBUTIONS TO THE BIRDS OF PARAGUAY.] *Senckenbergiana Biol.* 49: 317-365. 1969. [From Auk 87(1), 1970. In German.] *WR 138: 54*

Urban, E. K. A GUIDE TO THE BIRDS OF LAKE ABIATA. *Walia* 1: 24-37. 1969. [From Ibis 111(4), 1969.] *WR 138: 54*
An "Ethiopian Lake which has one of the largest concentrations in Africa of *Pelecanus onocrotalus*...and...*Spatula clypeata*."

Vuilleumier, Francois. FIELD NOTES ON SOME BIRDS FROM THE BOLIVIAN ANDES. *Ibis* 111(4): 599-608. Oct. 1969. *WR 138: 54*
[Univ. Mass., Boston.] Information is given on 14 rare or little known species of Andean birds.

BIRDS--POPULATIONS & FLUCTUATIONS

Carpenter, Michael L., William B. Jackson, and Michael W. Fall. BIRD POPULATIONS AT ENIWETOK ATOLL. *Micronesica* 4(2): 295-307, 7 figs. Dec. 1968. *WR 138: 55*

[Ariz. State Univ., Tempe.] Summary: Observations of bird diversity and populations were made at Eniwetok Atoll during portions of 1964, 1965, 1966, and 1967; populations were found to differ markedly from those previously reported for the atoll. While some differences in the number of migratory or wandering birds were noted, the principal decrease was in the resident species. Vegetational recovery and growth were probably responsible for a shift in the nesting site of one tern species but did not seem to be responsible for the reduction of the other species. No adequate explanation could be discovered. The breeding cycle of sooty terns *(Sterna fuscata)* on Eniwetok was reviewed and found to be irregular.

Erskine, A. J. THE BREEDING BIRD SURVEY IN CANADA. *Blue Jay* 28(1): 33-35, 1 fig. Mar. 1970. *WR 138: 55*

[Canadian Wildl. Serv., Ottawa, Ontario, Canada.] Population indices compiled from four consecutive surveys (1966-69) may be used to detect and describe changes resulting from severe weather during future migration and breeding seasons, and should also detect changes in land use.

Koplin, James R. THE NUMERICAL RESPONSE OF WOODPECKERS TO INSECT PREY IN A SUBALPINE FOREST IN COLORADO. *Condor* 71(4): 436-438, 2 figs. Oct. 1969. *WR 138: 55*

[Colo. State Univ., Fort Collins.] A fifty-fold increase in density of woodpeckers occurred in response to insect prey in fire-killed trees. The numerical response was the result of drift and aggregation rather than increased reproduction, since nesting densities were comparable each spring.--Courtesy/ Paul A. Stewart.

Kumerloeve, H. ÜBER STARKEN DURCHZUG DER SCHNEEAMMER *(PLECTROPHENAX NIVALIS)* UND WEITERE BEOBACHTUNGEN AUF DER NORDSEEINSEL SPIEKEROOG. [ON A VAST MIGRATION OF SNOW BUNTINGS *(PLECTROPHENAX NIVALIS)* AND FURTHER OBSERVATIONS FROM THE NORTH SEA ISLAND OF SPIEKEROOG.] *Ornithol. Mitteil.* 21(10): 213-215. Oct. 1969. In German. *WR 138: 55*

[Hubert-Reissner-Strasse, München-Gräfelfing, Germany.]

Orians, Gordon H. THE NUMBER OF BIRD SPECIES IN SOME TROPICAL FORESTS. *Ecology* 50(5): 783-801, 1 fig. Late Summer 1969. *WR 138: 55*

[Univ. Wash., Seattle.] The number of bird species recorded was not affected by the tree species diversity or the length of the dry season, but more species occurred in the drier areas. Larger numbers of lowland species sit and wait for their prey than is true of upland species.--Courtesy/ Paul A. Stewart.

Teulings, Robert P. WINTER FINCH INFLUX--1968-1969. *Chat* 33(2): 38-41. June 1969. *WR 138: 55*

[Route 2, Chapel Hill, N.C.] Evening grosbeaks and purple finches were widespread and abundant, and in some sections pine siskins were in moderate to heavy concentrations.--Courtesy/ Paul A. Stewart.

Yapp, W. B. THE BIRD POPULATION OF AN OAKWOOD (WYRE FOREST) OVER EIGHTEEN YEARS. *Proc. Birm. Nat. Hist. Soc.* 21: 199-216. 1969. [From Ibis 111(4), 1969.] *WR 138: 55*

BIRDS--ECONOMICS, CONTROL, MORTALITY

Haukioja, Erkki. MORTALITY RATES OF SOME FINNISH PASSERINES. *Ornis Fennica* 46(4): 171-178. 1969. In English with Finnish summ. *WR 138: 55*

[Univ. Turku, Turku, Finland.] Annual mortality rates of 19 passerine species were calculated based upon twenty or more recoveries of the species during no more than 15 years.--From summ.

Hild, Jochen, Werner Keil, and Wilfred Przygodda. AUS DER ARBEIT DES DEUTSCHEN AUSSCHUSSES ZUR VERHÜTUNG VON VOGELSCHÄDEN IM LUFTVERKEHR. [ON THE WORK OF THE GERMAN COMMITTEE FOR THE PREVENTION OF DAMAGE TO AIR TRAFFIC BY BIRDS.] *Luscinia* 40(3/4): 101-106. Sept. 1968. In German. *WR 138: 56*
[Postfach 5000/15/17, Porz-Wahn, Germany.]

Jackson, J. R. WHAT DO KEAS DIE OF? *Notornis* 16(1): 33-44. 1969. [From Bird-Banding 41(1), 1970.] *WR 138: 56*
Analysis of mortality for the kea *(Nestor notibilis)*, an endemic New Zealand parrot.

Stamm, Anne L. A NINE-YEAR-OLD WHITE-CROWNED SPARROW. *Ky. Warbler* 46(1): 22. Feb. 1970. *WR 138: 56*
[9101 Spokane Way, Louisville, Ky.] *"Zonotrichia leucophrys."*

BIRDS--PARASITES & DISEASES

Clifford, Carleton M., Daniel E. Sonenshine, Earl L. Atwood, Chandler S. Robbins, and Lyndahl E. Hughes. TESTS ON TICKS FROM WILD BIRDS COLLECTED IN THE EASTERN UNITED STATES FOR RICKETTSIAE AND VIRUSES. *Am. J. Trop. Med. & Hyg.* 18 (6): 1057-1061, 1 fig. Nov. 1969. *WR 138: 56*
Abstract: Results of tests for rickettsiae and viruses on 4,266 taken from more than 10,000 birds, comprising 150 species, in the eastern United States indicated the presence of two agents: *Rickettsia rickettsii* and an agent of the typhus group. Infection with *R. rickettsii* was indicated in 24 pools of *Haemaphysalis leporispalustris*, five pools of *Ixodes dentatus*, one pool of *Ixodes brunneus*, and two pools that contained both *I. dentatus* and *H. leporispalustris*. The pools positive for *R. rickettsii* were from a variety of locations in the eastern U.S. The typhus-group agent was demonstrated only once, in a single pool of *H. leporispalustris* taken at Kent Point, Maryland. A strain of *R. rickettsii* was isolated from a pool of 21 larval *H. leporispalustris* collected at Ocean City, Maryland. This agent possessed several characteristics of other strains of low virulence isolated previously in this region by various authors.

Kageruka, P. ASPERGILLOSE AVIAIRE. [ASPERGILLOSIS IN BIRDS.] *Acta Zool. & Pathol. Antverpiensia* no. 49. p. 77-105. Oct. 1969. In French with Dutch, German, and English summ. *WR 138: 56*
[Inst. Med. Tropicale Prince Léopold, Antwerp, Belgium.]

Ledger, J. A. A LIST OF ECTOPARASITES RECORDED FROM COLIES. *Ostrich* 39(4): 231-235. 1968. [From Bird-Banding 40(4), 1969.] *WR 138: 56*
Ectoparasites of Coliiformes.

Nickol, Brent B. ACANTHOCEPHALA OF LOUISIANA PICIDAE WITH DESCRIPTION OF A NEW SPECIES OF *MEDIORHYNCHUS*. *J. Parasitol.* 55(2): 324-328, 8 figs. Apr. 1969. *WR 138: 56*
[Univ. Nebr., Lincoln.]

Oosthuizen, J. H., and Miles B. Markus. THE HEMATOZOA OF SOUTH AFRICAN BIRDS. IV. LEUCOCYTOZOONOSIS IN NESTLINGS. *J. Parasitol.* 54(6): 1244-1245, 2 figs. Dec. 1968. *WR 138: 56*
[Univ. Pretoria, Pretoria, South Africa.]

Ventura, A. K. ECTOPARASITES OF JAMAICAN BIRDS. *Caribbean J. Sci.* 8: 165-172. 1968. [From Auk 87(1), 1970.] *WR 138: 56*

XUM

GAME BIRDS--GENERAL

Collias, N. E., and P. Saichuae. ECOLOGY OF THE RED JUNGLE FOWL IN THAILAND AND MALAYA WITH REFERENCE TO THE ORIGIN OF DOMESTICATION. *Nat. Hist. Bull. Siam. Soc.* 22: 189-209. 1967. [From Ibis 111(4), 1969.] *WR 138: 57*

Kealy, R. D. STORAGE AND INCUBATION OF GAME BIRD EGGS. *Modern Game Breeding* 6(4): 19-21. Feb. 1970. *WR 138: 57*
[Ralston Purina Co., St. Louis, Mo.] Results of research on collecting, storing, and incubating eggs of pheasant, quail, and chukar are tabulated.

QUAIL

Fatora, Joseph R., and Michael J. Duever. DAILY AND SEASONAL ACTIVITY PATTERNS OF BOBWHITE QUAIL ON THE AEC SAVANNAH RIVER PLANT. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 189-198, 5 figs. 1968 [1969]. *WR 138: 57*
[Route 1, Clarksville, Ga.]

Johnsgard, Paul A. A SUMMARY OF INTERGENERIC NEW WORLD QUAIL HYBRIDS, AND A NEW INTERGENERIC HYBRID COMBINATION. *Condor* 72(1): 85-88, 2 figs. Jan. 1970. *WR 138: 57*
[Univ. Nebr., Lincoln.] Five species of *Colinus, Callipepla,* and *Lophortyx* have been hybridized in at least eight of the ten possible combinations.--Courtesy/ Paul A. Stewart.

Melvin, Kenneth B., and F. Thomas Cloar. HABITUATION OF RESPONSES OF QUAIL *(COLINUS VIRGINIANUS)* TO A HAWK *(BUTEO SWAINSONI)*: MEASUREMENT THROUGH AN 'INNATE SUPPRESSION' TECHNIQUE. *Animal Behaviour* 17(3): 468-473, 2 figs. Aug. 1969. *WR 138: 57*
[Univ. Ala., University.]

Mullan, James W., and Richard L. Applegate. THE DROWNING OF BOBWHITES IN A LARGE RESERVOIR. *Wilson Bull.* 81(4): 467. Dec. 1969. *WR 138: 57*
[Bur. Sport Fisheries, 95 South Vernal Ave., Vernal, Utah.] The quail covey mistakenly landed in the water hidden by a dense early morning fog.--Courtesy/ Paul A. Stewart.

Ozmon, Kenneth L. IMPRINTING AND FOLLOWING IN JAPANESE QUAIL *(COTURNIX COTURNIX JAPONICA). Quail Quarterly* 7(1): 2-12, 2 figs. Jan. 1970. *WR 138: 57*
[Univ. Prince Edward Island, Charlottetown, Prince Edward Island, Canada.] Abstract: An attempt was made to establish the optimal time for imprinting in Japanese quail. Thirty-two birds were imprinted at either 6, 9, 12 or 15 hours after hatching. Results indicated that 12 hours is the optimal time for evoking the following response for the species. Findings were compared with those of another study in which distress calling was used as a measure of imprinting effectiveness.

Robinette, D. Lamar, Dan W. Speake, and E. D. Donnelly. AN EVALUATION OF A RESEEDING VETCH, CLANTON TICK-CLOVER, AND A LOW-TANNIN SELECTION OF SERICEA LESPEDEZA AS QUAIL FOOD AND COVER PLANTS. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 114-125. 1968 [1969]. *WR 138: 57*
[Ala. Coop. Wildl. Res. Unit, Auburn.]

PHEASANTS

Fišer, Z., and V. Hanuš. NÁVRATNOST BAŽANTŮ VYPUŠTĚNÝCH Z UMĚLÉHO ODCHOVU. [RETURNS OF PHEASANT RELEASES FROM ARTIFICIAL REARING CAGES.] *Lesnický Časopis* 13(40): 701-712, 4 figs. 1967. In Czech with Russian and French summ.] *WR 138: 57*

Gates, J. M., E. J. Frank, and E. E. Woehler. MANAGEMENT OF PHEASANT NESTING COVER ON UPLAND SITES IN RELATION TO CROPLAND DIVERSION PROGRAMS. *Wis. Dept. Nat. Resources Res. Rept.* 48. iii + 22 p., illus. 1970. *WR 138: 58*
[Wis. Dept. Nat. Resources, Madison.] Specific suggestions are offered for the establishment and maintenance of nesting cover on diverted cropland, including plant materials and seeding rates, field size and shape, and subsequent management to promote maximum utilization by nesting birds. Broad changes in cropland diversion which would facilitate needed types of management include: (1) Emphasis on long-term instead of annual diversion contracts, (2) Incentives encouraging management diverted cropland for the purpose of pheasant nesting cover, and (3) Prohibition of cover disturbance, particularly clipping, during the major period of pheasant nesting. Most importantly, attitudes should be encouraged that publicly financed programs as expensive as cropland diversion should be multiple-purpose in scope in order to realize as many side benefits to society as possible. --From abstr.

Hanuš, V., and Z. Fišer. VÝSLEDKY VELKOCHOVŮ BAŽANTŮ U SL KONOPIŠTĚ. [THE RESULTS OF LARGE-SCALE PHEASANT REARING AT THE STATE FOREST ENTERPRISE KONOPISTE.] *Lesnický Časopis* 14(41): 85-98, 8 figs. 1968. In Czech with Russian, German, French, and English summ. *WR 138: 58*

Hanuš, V., and B. Temmlová. VLIV TRIVITAMINU (A, D_3, E) NA SNŮŠKU A LÍHNIVOST VAJEC BAŽANTÍCH SLEPIC. [INFLUENCE OF TRIVITAMINE (A, D_3, E) ON THE LAYING AND HATCHING OF PHEASANT EGGS.] *Lesnický Časopis* 14(41): 853-862, 2 figs. 1968. In Czech with Russian, German, and French summ. *WR 138: 58*

Hinkson, Raymond S., Jr., Lewis T. Smith, and Adu G. Kese. CALCIUM REQUIREMENT OF THE BREEDING PHEASANT HEN. *J. Wildl. Mgmt.* 34(1): 160-165. Jan. 1970. *WR 138: 58*
[Univ. R.I., Kingston.] Abstract: Four isocaloric corn-soybean type diets containing 0.9, 1.8, 2.5 and 3.7 percent Ca were fed to young pheasant hens *(Phasianus colchicus)* during an 18-week experimental period. All the diets contained 26.0 percent protein and 0.6 percent available P. Each dietary treatment group was made up of 4 replicated pens containing one cock and 12 hens, except for one pen which contained 11 hens. The highest rate of egg production was obtained with pheasants fed a diet containing 2.5 percent calcium. The rate of egg production was significantly lower *($P<0.05$)* for the pheasants fed the diets containing 0.9 and 3.7 percent Ca. The greatest decline in the rate of egg production occurred with hens maintained on the diet containing 3.7 percent Ca. There were no significant differences *($P>0.05$)* in egg weight, eggshell-membrane thickness, or femur bone ash content with regard to the pheasant hens fed the four diets. Feed consumption was significantly lower *($P<0.01$)* for the hens consuming the diet containing 1.8 percent Ca. Hens in all treatment groups gained body weight during the experimental period. Egg fertility and hatchability results were variable within and between treatment groups.

Kopischke, Earl D., and Stanley W. Harris. FOOD HABITS OF MINNESOTA PHEASANTS. *Loon* 41(4): 119-123. Dec. 1969. *WR 138: 58*
[Minn. Div. Game & Fish, Madelia.] Corn, oats, soybeans, and wheat were the major foods found in the crops of 533 adult Minnesota pheasants examined from 1957-1962. Annual diet consisted of 57 different food items.--From summ.

Labisky, Ronald F., and Gary L. Jackson. SHELL COLOR OF EGGS LAID BY YEARLING, 2-, AND 3-YEAR-OLD PHEASANTS. *Wilson Bull.* 81(4): 466-467. Dec. 1969. *WR 138: 58*
[Ill. Nat. Hist. Surv., Urbana.] Mean eggshell color changed with increasing breeding age for some, but not all, pheasant hens.--Courtesy/ Paul A. Stewart.

PHEASANTS--Continued

Vohs, Paul A., Jr., and Larry R. Carr. GENETIC AND POPULATION STUDIES OF TRANSFERRIN POLYMORPHISM IN RING-NECKED PHEASANTS. *Condor* 71(4): 413-417, 5 figs. Oct. 1969. *WR 138: 59*
[Iowa State Univ., Ames.] Eight distinct transferrin phenotypes were found by using starch gel electrophoresis to separate blood proteins of ring-necked pheasants.--From summ. Courtesy/ Paul A. Stewart.

Woehler, Eugene E., and John M. Gates. AN IMPROVED METHOD OF SEXING RING-NECKED PHEASANT CHICKS. *J. Wildl. Mgmt.* 34(1): 228-231, 2 figs. Jan. 1970. *WR 138: 59*
[Wis. Dept. Nat. Resources, Madison.] Abstract: Sex of newly hatched pheasants *(Phasianus colchicus)* can be easily determined from presence in the male of a diminutive flap of papillary tissue corresponding to the cheek patch or wattle. Methods described in this paper gave sexing accuracy of 90.0 percent on males and 98.5 percent among females. Advantages over previous methods appear to be a slight gain in overall accuracy, greater speed, and applicability throughout the natal and juvenal plumages. Use of the technique at the Wisconsin State Game Farm since 1962 has enabled sexing of 900-1,000 day-old chicks per man-hour with minimum accuracy of 90 percent among cocks.

GROUSE, PARTRIDGE, ETC.

Jones, Thomas L., and William L. Robinson. BLOOD PARASITES OF MICHIGAN SPRUCE GROUSE, *CANACHITES CANADENSIS*. *J. Parasitol.* 55(3): 492. June 1969. *WR 138: 59*
[Northern Mich. Univ., Marquette.]

Mohan, R. N., and R. D. Manwell. *PLASMODIUM JUXTANUCLEARE* IN AFRICAN PARTRIDGES *(FRANCOLINUS* SP.). *J. Parasitol.* 55(3): 543. June 1969. *WR 138: 59*
[Central Veterinary Lab., Dar es Salaam, Tanzania.]

Peterson, J. G. THE FOOD HABITS AND SUMMER DISTRIBUTION OF JUVENILE SAGE GROUSE IN CENTRAL MONTANA. *J. Wildl. Mgmt.* 34(1): 147-155. Jan. 1970. *WR 138: 59*
[Mont. Fish & Game Dept., White Sulphur Springs.]

Potapov, R. L. [THE COURTSHIP DISPLAY OF THE ASIATIC SPRUCE GROUSE.] *Zool. Zhur.* 48(6): 864-870. 1969. [From Bird-Banding 41(1), 1970. In Russian with English summ.] *WR 138: 59*
"Falcipennis falcipennis."

Shubikova, O. N. [TETRAONIDS AS GEOGRAPHIC RESOURCES.] *Izvest. Akad. Nauk SSSR Ser. Geogr.* 1969(2): 55-59. 1969. [From Bird-Banding 41(1), 1970. In Russian.] *WR 138: 59*

Stabler, Robert M., Nancy J. Kitzmiller, Gordon M. Clark, Thomas W. Mussehl, and Philip Schladweiler. HEMATOZOA FROM MONTANA BLUE GROUSE. *J. Parasitol.* 55 (4): 830-832. Aug. 1969. *WR 138: 59*
[Colo. Coll., Colorado Springs.]

Tanhuanpaa, E., and E. Pulliainen. MAJOR FATTY ACID COMPOSITION OF SOME ORGAN FATS IN THE WILLOW GROUSE *(LAGOPUS LAGOPUS)* AND THE ROCK PTARMIGAN *(LAGOPUS MUTUS)*. *Ann. Acad. Sci. Fennica, Ser. A* 4(141). 14 p. 1969. [From Auk 87(1), 1970.] *WR 138: 59*

Tibbits, F. Donald, and Bert B. Babero. *ASCARIDIA GALLI* (SCHRANK, 1788) FROM THE CHUKAR PARTRIDGE, *ALECTORIS CHUKAR* (GRAY), IN NEVADA. *J. Parasitol.* 55(6): 1252. Dec. 1969. *WR 138: 59*
[Univ. Nev., Reno.]

GROUSE, PARTRIDGE, ETC.--Continued

Zwickel, Fred C., and J. H. Brigham. AUTUMN SEX AND AGE RATIOS OF SPRUCE GROUSE IN NORTH-CENTRAL WASHINGTON. *J. Wildl. Mgmt.* 34(1): 218-219. Jan. 1970. *WR 138: 60*

[Univ. Alberta, Edmonton, Canada.] Abstract: During the years 1954-1964, we collected information on sex and age from 605 Franklin spruce grouse *(Canachites canadensis franklinii)* killed by hunters on a study area in north-central Washington. These data indicated a 50:50 sex ratio in both adults and juveniles. Production to autumn, 188 juveniles per 100 adult females, was relatively low in comparison to other species of gallinaceous birds and spruce grouse in other areas for which data are available. Populations appear to be maintaining themselves in spite of this apparent low production.

TURKEY

Beasom, Samuel L. PRODUCTIVITY OF BEARDED WILD TURKEY HENS IN SOUTH TEXAS. *J. Wildl. Mgmt.* 34(1): 183-186. Jan. 1970. *WR 138: 60*

[Univ. Wis., Madison.] Abstract: The productivity of bearded Rio Grande wild turkey *(Meleagris gallapavo intermedia)* hens was investigated on the King Ranch in South Texas from June to September, 1968. Field observations indicated there was no significant difference ($P<0.05$) between the ratio of bearded or non-bearded hens with or without poults nor in brood sizes.

Beasom, Samuel L. TURKEY PRODUCTIVITY IN TWO VEGETATIVE COMMUNITIES IN SOUTH TEXAS. *J. Wildl. Mgmt.* 34(1): 166-175, 1 fig. Jan. 1970. *WR 138: 60*

[Univ. Wis., Madison.] Abstract: Differences in productivity of the Rio Grande turkey *(Meleagris gallopavo intermedia)* between mesquite *(Prosopis juliflora)* and live oak *(Quercus virginiana)* vegetative communities on the King Ranch in South Texas were investigated from June 6, 1968, to January 3, 1969. The average brood size in August for the mesquite area, as determined from 1,720 poult observations, was 6.9, while 721 poult observations on the live oak area revealed an average brood size of 4.6. The overall poult:hen ratios at this same time were 4.7 and 2.6 while the hens seen without poults were 31 and 40 percent respectively. The August productivity, or percent of increase in the population due to reproduction, was 336 percent for the mesquite area and 159 for the live oak. The November, or pre-hunting season productivities were 315 and 129 percent. Poult mortality for the 13-week period, between 2 and 15 weeks of age, was calculated to be 22.9 percent for the mesquite area and 12.1 for the live oak. A helicopter census yielded a calculated density of 56 turkeys per 1,000 acres on the mesquite area and 51 on the live oak. Road counts revealed overestimations of these densities ranging from 95-193 percent.

Billingsley, B. B., Jr., and Dale H. Arner. THE NUTRITIVE VALUE AND DIGESTIBILITY OF SOME WINTER FOODS OF THE EASTERN WILD TURKEY. *J. Wildl. Mgmt.* 34(1): 176-182. Jan. 1970. *WR 138: 60*

[Miss. State Univ., State College.] Abstract: Eight fall and winter foods of the eastern wild turkey *(Meleagris gallopavo silvestris)* were analyzed for content of moisture, crude protein, crude fat, nitrogen free extract, crude fiber, and ash. Chromic oxide (Cr_2O_3) was used as an index substance to correlate the weight of excreta to the weight of good ingested. The foods were fed to both juvenile and adult eastern wild turkey hens and the droppings were analyzed for content of crude protein, crude fat, nitrogen free extract, crude fiber, ash, uric acid, and chromic oxide. Utilization coefficients were determined for crude protein, nitrogen free extract, and crude fat. Crude fat was best utilized, crude protein was second in utilization, and nitrogen free extract was third. There was little difference in utilization by adult and juvenile birds. Food items were evaluated, taking into consideration the nutrient content present and the utilization of these nutrients. Ranked in order of value to the turkey were spicebush *(Lindera benzoin)*, chufa *(Cyperus esculentus)*, and wild grape *(Vitis aestivalis)*.

TURKEY--Continued

Cardoza, James E. THE WILD TURKEY. *Mass. Wildl.* 20(6): 2-7, 4 [figs.]. Nov.-Dec. 1969. *WR 138: 61*
Turkey populations have been re-established in Massachusetts with wild turkeys trapped and released from native West Virginia and New York flocks.

Kellogg, Forest E., and W. Malcolm Reid. BOBWHITES AS POSSIBLE RESERVOIR HOSTS FOR BLACKHEAD IN WILD TURKEYS. *J. Wildl. Mgmt.* 34(1): 155-159. Jan. 1970. *WR 138: 61*
[Univ. Ga., Athens.] Abstract: Blackhead disease, caused by *Histomonas meleagridis*, occurs regularly in wild turkey *(Meleagris gallopavo)* populations in the southeastern United States. Experimental studies proved that an isolate of *H. meleagridis* originating from chicken cecal worm *(Heterakis gallinarum)* eggs caused blackhead in bobwhites *(Colinus virginianus)* and domestic turkeys. Bobwhites were less susceptible than turkeys to death from blackhead and were better carriers of the disease. Turkeys placed in a pen containing infected quail died from blackhead within 70 days. The incidence of blackhead in wild turkey populations is probably related to the number and species of other wild bird hosts in the area as well as to wild turkey density and proximity of domestic poultry.

Raybourne, Jack W. TELEMETRY OF TURKEY MOVEMENTS. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 47-54, 4 figs. 1968 [1969]. *WR 138: 61*
[Va. Comm. Game & Inland Fisheries, Richmond.] Four immature wild turkeys were trapped, banded, and equipped with 8-ounce radio transmitters during the fall of 1967. A total of 80 locations were obtained prior to the fall hunting season embracing a minimum home range of 424.8 acres. A total of 83 radio locations were recorded during the hunting season indicating a minimum home range of 552.0 acres. Vehicular disturbance by hunters appeared to be more responsible for the change in range size and shape than did hunting pressure.--From summ.

Williams, Lovett E., Jr., and David H. Austin. COMPLETE POST-JUVENAL (PRE-BASIC) PRIMARY MOLT IN FLORIDA TURKEYS. *J. Wildl. Mgmt.* 34(1): 231-233, 1 fig. Jan. 1970. *WR 138: 61*
[Fla. Game & Fresh Water Fish Comm., Gainesville.] Abstract: Juvenile wild turkeys *(Meleagris gallopavo)* in Florida sometimes retain no juvenal primaries in their first winter plumage thereby invalidating one of the widely used age criteria. Whether this condition exists extensively in populations outside of Florida is not known. The configuration of the greater upper secondary covert patch is an easily applied and reliable indicator of juvenile turkeys, and has the additional advantage of permitting the identification of juvenile turkeys at a distance.

Williams, Lovett E., Jr., David H. Austin, Neal F. Eichholz, Tommie E. Peoples, and Robert W. Phillips. A STUDY OF NESTING TURKEYS IN SOUTHERN FLORIDA. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 16-30, 5 figs. 1968 [1969]. *WR 138: 61*
[Fla. Game & Fresh Water Fish Comm., Gainesville.] Thirty-five turkey *(Meleagris gallopavo)* hens were instrumented with miniature animal tracking transmitters on a study area in March 1968. Twenty nests were found by directional radio location fixes and one nest was found incidentally. Average clutch size was 9.6 eggs per nest in fourteen nests which were observed after incubation began. Eight nests produced 70 poults from 76 eggs. Other observations are presented including notes on behavior, nest descriptions, and some movement data. --From abstr.

DOVES & PIGEONS

Crawford, Richard D. FOODS AND AGE RATIOS OF HUNTER BAGGED MOURNING DOVES IN NORTHWEST MISSOURI. *Iowa Bird Life* 39(4): 71-73. Dec. 1969. *WR 138: 61*
[Northeast Mo. State Coll., Kirksville.] Wheat comprised 44.1% of the total volume of food items found in 73 crops. Immature birds outnumbered adults 44:29.

DOVES & PIGEONS--Continued

Duever, Michael J., and Joseph R. Fatora. DAILY AND SEASONAL ACTIVITY PATTERNS OF MOURNING DOVES ON THE AEC SAVANNAH RIVER PLANT. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 181-189, 4 figs. 1968 [1969]. *WR 138: 62*
[Univ. Ga., Athens.]

Kocan, Richard M. PROBABLE ORIGIN OF CILIATES SEEN IN ORAL SWABBINGS OF DOVES AND PIGEONS. *J. Parasitol.* 54(5): 1033. Oct. 1968. *WR 138: 62*
[Patuxent Wildl. Res. Center, Laurel, Md.]

Lehrman, Daniel S., and Mark Friedman. AUDITORY STIMULATION OF OVARIAN ACTIVITY IN THE RING DOVE *(STREPTOPELIA RISORIA)*. *Animal Behaviour* 17(3): 494-497. Aug. 1969. *WR 138: 62*
[Natl. Inst. Mental Health, Bethesda, Md.]

Lott, D. F., and S. Comerford. HORMONAL INITIATION OF PARENTAL BEHAVIOR IN INEXPERIENCED RING DOVES. *Z. Tierpsychol.* 25(1): 71-75. 1968. [From Bird-Banding 41(1), 1970.] *WR 138: 62*
"Streptopelia risoria."

Wittenberg, J. ÜBER DAS FLÜGELLAHMELLSTEN DER RINGELTAUBE *(COLUMBA PALUMBUS)* AM NEST. [ON INJURY-FEIGNING IN THE WOOD PIGEON AT THE NEST.] *J. Ornithol.* 110: 30-38. 1969. [From Ibis 111(4), 1969. In German.] *WR 138: 62*
Injury-feigning in birds, in Lower Saxony, is ten times more frequent than in birds in England, suggesting an ethological difference between morphologically very similar populations.

WATERFOWL

Bolen, Eric G. SEX RATIOS IN THE BLACK-BELLIED TREE DUCK. *J. Wildl. Mgmt.* 34(1): 68-73. Jan. 1970. *WR 138: 62*
[Texas Technol. Univ., Lubbock.] Abstract: Primary, secondary, tertiary, and quarternary sex ratios for black-bellied tree ducks *(Dendrocygna autumnalis)* are not statistically different from a 50:50 distribution. Each age group, nonetheless, showed a slight excess of males.

Burger, George V., Raymond J. Greenwood, and Richard C. Oldenburg. ALULA REMOVAL TECHNIQUE FOR IDENTIFYING WINGS OF RELEASED WATERFOWL. *J. Wildl. Mgmt.* 34(1): 137-140. Jan. 1970. *WR 138: 62*
[Max McGraw Wildl. Foundation, Dundee, Ill.] Abstract: A technique for marking waterfowl ducklings less than 1 day old was developed to permit subsequent identification in the hand. Marking was accomplished by removing the alulae from wings of mallard *(Anas platyrhynchos)* ducklings with a small scissors or clipper. No differences in growth rate, behavior, or flight capability were noted between clipped and nonclipped birds. Thirty-five hundred ducklings were clipped when less than 1 day old, and 1,880 of these birds were subsequently examined at 4.5 weeks of age. Significant ($P<0.01$) differences in successful removal of right and left alulae indicate that right-handed persons should exercise more care when clipping left wings than when clipping right wings. Alula removal appears to be effective for marking the wings of waterfowl.

Crider, E. Dale, and Jimmie C. McDaniel. ORAL DRUGS USED TO CAPTURE WATERFOWL. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 156-161. 1968 [1969]. *WR 138: 62*
[Fla. Game & Fresh Water Fish Comm., Gainesville.] Diazepam, methihexital sodium, methoxymol, secobarbital sodium, and tribromoethanol.

Crider, E. Dale, Vern D. Stotts, and Jimmie C. McDaniel. DIAZEPAM AND ALPHA-CHLORALOSE MIXTURES TO CAPTURE WATERFOWL. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 133-141. 1968 [1969]. *WR 138: 62*
[Fla. Game & Fresh Water Fish Comm., Gainesville.] Abstract: Various mixtures of diazepam and alpha-chloralose were tested on waterfowl in Florida and Maryland by oral administration on baits. A total of 3,233 waterfowl of a variety of

species was anesthetized sufficiently to be captured. All mixtures which were tested reacted faster, and we believe more safely than did either of the two compounds separately. Several species were captured simultaneously at the same bait stations. Reactions to winter-spring capture versus fall capture revealed seasonal differences in physiological effects of the drugs. Local conditions may require special adaptation of the techniques in some cases.

Cunningham, Earl R. A THREE YEAR STUDY OF THE WOOD DUCK ON THE YAZOO NATIONAL WILDLIFE REFUGE. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 145-155, illus. 1968 [1969]. *WR 138: 63*
[Yazoo Natl. Wildl. Refuge, Hollandale, Miss.]

Dardiri, A. H., and W. K. Butterfield. THE SUSCEPTIBILITY AND RESPONSE OF WILD WATERFOWL TO DUCK PLAGUE VIRUS. *Acta Zool. & Pathol. Antverpiensia* no. 48. p. 373-383. 1969. *WR 138: 63*
[Plum Island Animal Disease Lab., Greenport, Long Island, N.Y.] Summary: Swans, mallard, black, lesser scaup ducks, Canada geese and several species of domestic ducks and geese were infected naturally or experimentally with duck plague virus. Infection resulted in mortality or development of detectable antibodies similar to those found in domestic ducks that were exposed to the disease. The duck plague virus was isolated from the cloacae but not blood of some birds 17 days following oral virus administration. The liver is a suitable organ for virus recovery from carcasses of birds that succumbed to the disease. The virus was not fatal to cowbirds and herring gulls when administered orally; attempts to detect the virus from these birds were unsuccessful.

Dobrowolski, Kazimierz A. STRUCTURE OF THE OCCURRENCE OF WATERFOWL TYPES AND MORPHO-ECOLOGICAL FORMS. *Ekologia Polska--Ser. A* 17(2): 29-72, 10 figs. 1969. In English with Polish summ. *WR 138: 63*
[Warsaw Univ., Warsaw, Poland.] Abstract: The paper presents the structure of waterfowl communities. Materials from the Mamry Lake (10,450 ha), as well as data from previous papers by the present author were utilized. Birds do not inhabit the whole reservoir uniformly, but do it selectively--they have more or less constant places of occurrence or aggregation. Ecological association of birds of the lake was identified and there was indicated the fact that lake zones differentiate it, while individual links of the association do occupy different zones finding just in them their proper ecological niches. The boundary between reeds and the open water is the most numerously inhabited zone. Lake association has been compared with the river one, differences between them and the effect of these differences upon ecological relations in both communities and both environments has been indicated.

Dwyer, Thomas J. WATERFOWL BREEDING HABITAT IN AGRICULTURAL AND NONAGRICULTURAL LAND IN MANITOBA. *J. Wildl. Mgmt.* 34(1): 130-136. Jan. 1970. *WR 138: 63*
[Northern Prairie Wildl. Res. Center, Jamestown, N. Dak.] Abstract: Waterfowl populations and habitat characteristics were examined on 33 potholes in each of two 16-square-mile study areas of agricultural and nonagricultural land in southwestern Manitoba. The agricultural land potholes, lacking in or incompletely surrounded by trees, received greater use by lesser scaup *(Aythya affinis)*, canvasback *(A. valisineria)*, redhead *(A. americana)*, coot *(Fulica americana)*, and three species of grebes (Podicipedidae). The nonagricultural land potholes, completely surrounded by trees, were more attractive to blue-winged teal *(Anas discors)*, and mallard *(A. platyrhynchos)*, and over twice as many dabbler broods were censused there. Abundant, undisturbed nesting cover may have been the reason for greater dabbler use on the nonagricultural land potholes since chemical and biological properties suggest more fertile conditions in the agricultural land.

Evans, M. E. EGG-CARRYING BY FEMALE MUSCOVY DUCK. *British Birds* 62(9): 384-385. Sept. 1969. *WR 138: 63*
[Wildfowl Trust, Slimbridge, Gloucester, England.] Broken eggshells were carried in the bill.

Evard, James O. ASSESSING AND IMPROVING THE ABILITY OF HUNTERS TO IDENTIFY FLYING WATERFOWL. *J. Wildl. Mgmt.* 34(1): 114-126, 4 figs. Jan. 1970. *WR 138: 64*
[Univ. Wis., Madison.] Abstract: The success of species management of waterfowl depends partially upon the ability of hunters to identify birds in flight. The objectives of this study were (1) to determine present levels of the ability of duck hunters to identify flying waterfowl, and (2) to determine if such hunter abilities could be improved by using a particular identification training program. Twenty experienced and 20 novice hunters from the Madison, Wisconsin, area completed field tests in 1967. The experienced hunters correctly identified 74 percent of 166 flights of 14 waterfowl species, and the novice hunters identified 52 percent of 129 waterfowl flights of 15 species. In 1968, a group of 33 hunters from the Horicon, Wisconsin, area completed identification tests in the field. Twenty-four of the 33 hunters were exposed to three training sessions before undergoing field tests. The "trained" hunters correctly identified 82 percent of 372 waterfowl flights of 16 species, and the "untrained" hunters identified 70 percent of 308 flights of 20 waterfowl species. The data suggest that the majority of duck hunters tested cannot identify waterfowl on the wing to the degree assumed by present species management regulations, but that the field identification ability of duck hunters can be measurably improved by a training program.

Fredrickson, Leigh H. MORTALITY OF COOTS DURING SEVERE SPRING WEATHER. *Wilson Bull.* 81(4): 450-453, 2 figs. Dec. 1969. *WR 138: 64*
[Gaylord Memorial Lab., Univ. Mo., Puxico.] American coots *(Fulica americana)* suffered extensive mortality in Iowa during severe spring weather following a period of warm weather.--Courtesy/ Paul A. Stewart.

Fredrikson, K. A. TECKEN PÅ BOPARASITISM HOS VIGGEN *(AYTHYA FULIGULA)* INOM ETT BEGRÄNSAT FJÄRDOMRÅ DE I ÅBOLANDS SKÄRGÅRD. [OBSERVATIONS ON PARASITIC NESTING IN THE TUFTED DUCK *(AYTHYA FULIGULA).*] *Ornis Fennica* 45(4): 127-130. 1968. [From Bird-Banding 40(4), 1969. In (Swedish) with English summ.] *WR 138: 64*

Green, Charlotte Hilton. NORTH CAROLINA'S NATIONAL WILDLIFE REFUGES. *Wildl. N.C.* 34(3): 4-8, illus. Mar. 1970. *WR 138: 64*
[Raleigh, N.C.] Pea Island, Mattamuskeet, and Swanquarter National Wildlife Refuges are described as principal waterfowl wintering grounds in North Carolina. Four new refuges have good potential for becoming prime waterfowl areas.

Harrison, J. THE ALTITUDE OF A MIGRATING SHOVELER. *Bull. British Ornithol. Club* 87: 72. 1969. [From Auk 87(1), 1970.] *WR 138: 64*

Jessen, Robert L. MALLARD POPULATION TRENDS AND HUNTING LOSSES IN MINNESOTA. *J. Wildl. Mgmt.* 34(1): 93-105, 1 fig. Jan. 1970. *WR 138: 64*
[Minn. Dept. Conserv., St. Paul.]

Jones, Jack D. STOCK PONDS BECOMING MONTANA DUCK FACTORIES. *Mont. Outdoors* 5(2): [1-3], illus. Feb. 1970. *WR 138: 64*
"Much of the loss of critical waterfowl breeding and nesting habitat has been offset through construction of stock ponds, particularly in eastern Montana. Nearly 8,000 of these ponds have been developed by the Bureau of Land Management in eastern Montana, and these attract breeding pairs of mallards, pintails, teal, gadwalls, and baldpates, the blue-ribbon ducks of the Central flyway."

Keve, András. AYTHYNAE ÉS MERGINAE-FAJOK ELÖFORDULÁSA ÉS VONULÁSUK ÉVI CIKLUSAI A BALATONON. [THE DIVING DUCKS AND MERGANSERS OF LAKE BALATON.] *Aquila* 75: 21-44. 1968. In Hungarian with German summ. *WR 138: 64*

Kurbanova, D. [ON THE FEATHER MITE *(ACARINA, ANALGESOIDEA)* FAUNA OF WATERFOWL IN TURKMENIYA.] *Izvest. Akad. Nauk Turkmenskoi SSR Ser. Biol.* 1968(6): 50-55. 1968. [From Bird-Banding 40(4), 1969. In Russian.] *WR 138: 64*

Lane, Preston W., Glen W. Bond, Jr., and William H. Julian, Jr. WOOD DUCK PRODUCTION AND TRANSPLANTS ON NATIONAL WILDLIFE REFUGES IN THE SOUTH ATLANTIC STATES. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 202-208. 1968 [1969]. *WR 138: 65*

[Bur. Sport Fisheries & Wildl., Washington, D.C.] Abstract: A management investigation was initiated on Savannah National Wildlife Refuge in 1965 to determine the feasibility of producing pen-reared wood ducks, imprinted to artificial nesting structures, for use in starting new nesting colonies. To date 780 young woodies, imprinted to nest in nest boxes, have been produced, transferred, and released on six national wildlife refuges in Georgia, Florida, and South Carolina. Nesting in artificial structures had not previously occurred on three of these refuges. Transplanted birds nested in boxes on four of the release sites the first nesting season after release, including three refuges with no history of nest box use. The second season after release over 50 nesting attempts occurred on one refuge that had no previous use of nest boxes by wood ducks.

Leuzinger, Hans. BERICHT ÜBER DIE NATIONALE WASSERVOGELZÄHLUNG 1965/66 UND DIE MITTWINTER-WASSERVOGELZÄHLUNGEN 1967, 1968 UND 1969 IN DER SCHWEIZ UND DEREN GRENZGEBIETEN. [REPORT OF THE NATIONAL WATERFOWL CENSUS 1965/66 AND THE MID-WINTER WATERFOWL CENSUS 1967, 1968, AND 1969 IN SWITZERLAND AND THE GRENZ REGION.] *Ornithol. Beobachter* 66(5/6): 163-172, 1 fig. Dec. 1969. In German. *WR 138: 65*

Leys, H. N., J. Marbus, and J. J. F. E. De Wilde. VOEDSELVLUCHTEN EN JONGEN-PRODUKTIE BIJ DE FUTEN VAN DE HOUTRIBSLUIZEN. [FOOD-FLIGHTS AND PRODUCTIVITY OF THE GREAT CRESTED GREBE *(PODICEPS CRISTATUS)* IN HOUTRIBSLUIZEN.] *Levende Natuur* 72: 11-18, 3 figs. 1969. In Dutch with English summ. *WR 138: 65*

Locke, Louis N., Louis Leibovitz, Carlton M. Herman, and John W. Walker. DUCK VIRAL ENTERITIS (DUCK PLAGUE) IN NORTH AMERICAN WATERFOWL. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 96-98. 1968 [1969]. *WR 138: 65*

[Patuxent Wildl. Res. Center, Laurel, Md.] "This paper briefly reviews the status of DVE among wild waterfowl in North America and describes some of the characteristic lesions associated with this disease. The paper also mentions some of the work which has been undertaken to learn more about the status of DVE in North America."

Lockner, F. Russell, and Richard E. Phillips. A PRELIMINARY ANALYSIS OF THE DECRESCENDO CALL IN FEMALE MALLARDS *(ANAS PLATYRHYNCHOS* L.*). Behaviour* 35(3-4): 281-287, 1 fig. 1969. In English with French summ. *WR 138: 65*

[Sonoma State Coll., Rohnert Park, Calif.] Summary: The decrescendo is a conspicuous, species typical call characteristic of females of most *Anas* species. The conditions necessary for the elicitation of this call were studied in captive, paired female mallards, *Anas platyrhynchos*, in both outdoor and indoor pens. Paired females gave significantly more calls when visually isolated from their mates than when their mates were present. The response was specific to separation from the mates and not to separation from familiar but non-mated males. Females did not give decrescendos when they were auditorially as well as visually isolated from their mates. The relationship between the decrescendo call of the females and the slow räbb call of the males is discussed.

Martinson, R. Kahler, James F. Voelzer, and Sharon L. Meller, compilers. WATERFOWL STATUS REPORT 1969. *US F&WS, Spec. Sci. Rept.--Wildl.* no. 128. ii + 153 p. Dec. 1969. *WR 138: 65*

[Migratory Bird Populations Sta., Laurel, Md.] Tabulations of the 1969 waterfowl population and habitat surveys and the results of mail surveys of waterfowl hunters for the 1968-69 season are presented.

Matthews, G. V. T. EGG-CARRYING BY FEMALE MALLARD. *British Birds* 62(9): 384. Sept. 1969. *WR 138: 65*

[Wildfowl Trust, Slimbridge, Gloucester, England.] Broken eggshells were carried in the bill.

Nisson, L. [THE INTERNATIONAL MIDWINTER CENSUSES OF DUCKS AND SWANS IN SWEDEN 1967-1968.] *Vår Fågelvärld* 27: 333-344. 1968. [From Auk 87(1), 1970. With English summ.] *WR 138: 66*

Norderhaug, Magnar. NAVAERENDE BESTAND AV RINGGJESS *(BRANTA BERNICLA HROTA* (MÜLL.)) PÅ SVALBARD OG FRANS JOSEFS LAND. [THE BLACK BRANT POPULATION ON SPITZBERGEN AND FRANZ-JOSEF LAND.] *Sterna* 8(2): 73-80. 1968. [From Bird-Banding 41(1), 1970. In Norwegian.] *WR 138: 66*

Penney, Janice Gordon, and Edward D. Bailey. COMPARISON OF THE ENERGY REQUIREMENTS OF FLEDGLING BLACK DUCKS AND AMERICAN COOTS. *J. Wildl. Mgmt.* 34(1): 105-114, 2 figs. Jan. 1970. *WR 138: 66*

[Box 1012 Sioux Lookout, Ontario, Canada.] Abstract: An experiment was undertaken to measure food consumption, excreta, and growth of the black duck *(Anas rubripes)* and the American coot *(Fulica americana)* under laboratory conditions. Gross energy of the food and of the excreta samples was determined with a bomb calorimeter. The results were used to calculate the metabolizable energy per g of food. The total amount of energy retained by the ducks during the 8 weeks was 9,322 kcal per bird. The coots retained 5,362 kcal per bird or 57 percent of the energy retained by the ducks. Brood size was not as much a determining factor of growth rate and energy consumption in coots as it was in ducks.

Rylander, M. Kent, and Eric G. Bolen. ECOLOGICAL AND ANATOMICAL ADAPTATIONS OF NORTH AMERICAN TREE DUCKS. *Auk* 87(1): 72-90, 7 figs. Jan. 1970. *WR 138: 66*

[Texas Technol. Univ., Lubbock.] Morphological adaptations of *Dendrocygna bicolor* and *D. autumnalis* ducklings are important factors in the species' nesting behavior. A mathematical model proposes a mechanical climbing advantage in the duckling musculature of the cavity-nesting *autumnalis*.--From summ. Courtesy/ Paul A. Stewart.

Snell, Edith A. UNUSUAL MALLARD NESTING SITE. *Loon* 41(4): 132-133. Dec. 1969. *WR 138: 66*

[2695 S. Shore Blvd., White Bear Lake, Minn.] The mallard nested four consecutive seasons in a willow tree. Two clutches (23 ducklings) were successful.

Sterbetz, István. VADRÉCÉK KÖRNYEZETVIZSGÁLATA A KARDOSKÚTI TERMÉSZETVÉDELMI TERÜLETEN. [ENVIRONMENTAL STUDIES OF THE KARDOSKUTER NATURE RESERVE FOR WATERFOWL.] *Aquila* 75: 45-77, 4 figs. 1968. In Hungarian and German. *WR 138: 66*

Storer, Robert W. OBSERVATIONS ON ROLLAND'S GREBE. *El Hornero* 10(4): 339-350, 3 figs. 1967. *WR 138: 66*

[Univ. Mich., Ann Arbor.] Summary: Rolland's grebe is abundant and widespread in temperate South America. It is found on both large and small bodies of water and feeds on many kinds of animals from small invertebrates to fish. Its day-to-day activities resemble those of other grebes. Its courtship patterns include advertising, head-shaking, wing-raising, and a peculiar bumping ceremony. It is best placed in the genus *Rollandia* with the flightless species *micropterum*.

Tate, D. Jean, and James Tate, Jr. MATING BEHAVIOR OF THE COMMON LOON. *Auk* 87(1): 125-130, 2 figs. Jan. 1970. *WR 138: 66*

[Cornell Univ., Ithaca, N.Y.] Pre-copulatory and copulatory behavior.--Courtesy/ Paul A. Stewart.

Vermeer, Kees. SOME ASPECTS OF THE NESTING OF DUCKS ON ISLANDS IN LAKE NEWELL, ALBERTA. *J. Wildl. Mgmt.* 34(1): 126-129, 1 fig. Jan. 1970. *WR 138: 66*

[Canadian Wildl. Serv., Edmonton, Alberta, Canada.] Abstract: Duck nests situated on islands in Lake Newell, Alberta, were studied from egg-laying to hatching. Ducks nested most densely on small islands especially when islands were also inhabited by common terns *(Sterna hirundo)*. The mallard *(Anas platyrhynchos)* was the most abundant nesting species on islands in Lake Newell. The major cause of hatching failure was predation.

Williams, M. COURTSHIP AND COPULATORY BEHAVIOUR OF THE NEW ZEALAND GREY DUCK. *Notornis* 16(1): 23-32. 1969. [From Bird-Banding 41(1), 1970.] *WR 138: 67*
"Anas superciliosa."

SWANS & GEESE

Chapman, Joseph A., Charles J. Henny, and Howard M. Wight. THE STATUS, POPULATION DYNAMICS, AND HARVEST OF THE DUSKY CANADA GOOSE. *Wildl. Monographs* no. 18. 48 p., 27 figs. Nov. 1969. *WR 138: 67*
Immature dusky Canada geese had an average first-year mortality rate of 57.4% for the period 1952-65. Adult mortality rate estimates for the same period were between 32.8 and 34.6%. Average sex and age composition of the fall flight for the period 1952-1959 was estimated to be 24.3% immature males, 22.1% immature females, 25.4% males over one year old and 28.2% females over one year old.--From summ.

Lebedeva, M. I. [WHITE-FRONTED GOOSE MIGRATION ACCORDING TO BANDING DATA.] *Migratsii Zhivotnykh* 5: 12-23. 1968. [From Bird-Banding 40(4), 1969. In Russian.] *WR 138: 67*

Lebret, T. NACHTELIJK VOEDSELZOEKEN VAN DE GRAUWE GANS *(ANSER ANSER)* IN DE SEEWINKEL, NEUSIEDLERSEE. [NOCTURNAL FEEDING OF THE GREY LAG GOOSE *ANSER ANSER* IN SEEWINKEL, NEUSIEDLERSEE (AUSTRIA).] *Levende Natuur* 72: 152-159, 1 fig. 1969. In Dutch with English summ. *WR 138: 67*

Lebret, T. NACHTELIJKE WAARNEMINGEN OP EEN "SLAAP"-PLAATS VAN RIETGANZEN *(ANSER FABALIS)* IN HET NEUSIEDLER SEE-GEBIED. [NOCTURNAL OBSERVATIONS ON A ROOST OF BEAN GEESE *(ANSER FABALIS)* IN THE LAKE NEUSIEDL AREA.] *Limosa* 42(1-2): 16-26, 1 fig. 1969. In Dutch with English summ. *WR 138: 67*

Leck, C. F. A POSSIBLE HYBRID BETWEEN THE CANADA GOOSE AND THE PINK-FOOTED GOOSE. *Cassinia* 50: 9-11. 1968. [From Auk 87(1), 1970.] *WR 138: 67*

Lieff, Bernard C. EIDER HATCHING GOOSE EGG. *Wilson Bull.* 81(4): 465-466. Dec. 1969. *WR 138: 67*
[Univ. Western Ontario, London, Ontario, Canada.] A newly hatched blue goose lacks the swimming ability in fast water of newly hatched common eiders, and is unable to adapt itself to their mode of feeding.--Courtesy/ Paul A. Stewart.

Pakulak, Allan J., and Carroll D. Littlefield. BREEDING STATUS OF WHISTLING SWANS NEAR CHURCHILL, MANITOBA. *Wilson Bull.* 81(4): 464-465. Dec. 1969. *WR 138: 67*
[Colo. State Univ., Fort Collins.] Eight nests were observed from late May through August 1968.--Courtesy/ Paul A. Stewart.

Perrins, Christopher. MUTE SWAN'S METHOD OF DISPOSING OF BROKEN EGG. *British Birds* 62(9): 383. Sept. 1969. *WR 138: 67*
[Edward Grey Inst., High Street, Oxford, England.] The swan picked up the pieces of shell, one at a time, in her bill, and carried them to the river's edge.

Schneidauer, T. R. de. LA POPULATION EXPÉRIMENTALE D'OIES CENDRÉES DANS LA RÉSERVE DU ZWIN. [THE EXPERIMENTAL POPULATION OF GREY LAG GEESE *(ANSER A. RUBIROSTRIS)* IN THE ZWIN RESERVE.] *Ardea* 56: 228-247. 1968. [From Ibis 111(4), 1969. In French.] *WR 138: 67*

Vermeer, Kees. A STUDY OF CANADA GEESE, *BRANTA CANADENSIS*, NESTING ON ISLANDS IN SOUTHEASTERN ALBERTA. *Canadian J. Zool.* 48(2): 235-240, 3 figs. Mar. 1970. *WR 138: 67*
[Canadian Wildl. Serv., Edmonton, Alberta, Canada.] Abstract: Canada goose clutches situated on islands in Dowling Lake and Lake Newell, Alberta, were checked from laying to hatching. Egg-laying intervals averaged 1.87 days and

incubation periods 26.8 days. The distribution of nests showed a significant deviation from randomness in the direction of uniform spacing. Causes of extensive hatching failure at Dowling Lake were predation and desertion. Predation by coyotes was facilitated by low water levels. A preference for nesting on islands appears to be a mechanism to counteract mammalian predation.

Williams, G. R. THE CAPE BAPREN GOOSE, *(CEREOPSIS NOVAEHOLLANDIAE* LATHAM) IN NEW ZEALAND. *Notornis* 15: 66-69. 1968. [From Auk 87(1), 1970.] *WR 138: 68*

CRANES, RAILS, SHOREBIRDS

Ashmole, Myrtle J. FEEDING OF WESTERN AND SEMIPALMATED SANDPIPERS IN PERUVIAN WINTER QUARTERS. *Auk* 87(1): 131-135. Jan. 1970. *WR 138: 68*
[Yale Univ., New Haven, Conn.] Western sandpipers *(Erolia mauri)* fed chiefly by probing in wet mud; semipalmated sandpipers *(E. pusillus)* did less probing and fed on drier areas.--Courtesy/ Paul A. Stewart.

Beer, C. G. LAUGHING GULL CHICKS: RECOGNITION OF THEIR PARENTS' VOICES. *Science* 166(3908): 1030-1032. 21 Nov. 1969. *WR 138: 68*
[Rutgers Univ., Newark, N.J.] Abstract: Laughing gull chicks between 6 and 13 days old responded to the calls of their own parents with orientation toward the sound, approach, increased locomotion, and vocalization. In response to the same kinds of calls from other adults they tended to orient away from the sound, withdraw, and sit or crouch. Chicks as young as 6 days can identify their parents from individual characteristics in the calls of adult gulls.

Bengtson, S.-A., and B. Svensson. FEEDING HABITS OF *CALIDRIS ALPINA* L. AND *C. MINUTA* LEIDL. IN RELATION TO THE DISTRIBUTION OF MARINE SHORE INVERTEBRATES. *Oikos* 19: 152-157. 1968. [From Auk 87(1), 1970.] *WR 138: 68*

Brackbill, Hervey. SHOREBIRDS LEAVING THE WATER TO DEFECATE. *Auk* 87(1): 160. Jan. 1970. *WR 138: 68*
[2620 Poplar Dr., Baltimore, Md.] Solitary sandpipers *(Tringa solitaria)*, spotted sandpipers *(Actitis macularia)*, and killdeers *(Charadrius vociferus)* usually left the water to defecate.--Courtesy/ Paul A. Stewart.

Bub, H. ÜBER DEN SÄBELSCHNÄBLER *(RECURVIROSTRA AVOSETTA)* UND DEN GROSSEN BRACHVOGEL *(NUMENIUS ARQUATA)* IM JADEBUSEN BEI HOCHWASSER. [ON THE AVOCET *(RECURVIROSTRA AVOSETTA)* AND THE CURLEWS *(NUMENIUS ARQUATA)* IN JADE BAY (NORTHWEST GERMANY) DURING HIGH TIDE.] *Vogelwarte* 24: 135-142. 1967. [From Auk 87(1), 1970. In German.] *WR 138: 68*

Buckley, P. A., and F. G. Buckley. COLOR VARIATION IN THE SOFT PARTS AND DOWN OF ROYAL TERN CHICKS. *Auk* 87(1): 1-13, 5 figs. + 1 pl. Jan. 1970. *WR 138: 68*
[Hofstra Univ., Hempstead, Long Island, N.Y.] Four hundred downy royal tern chicks were color banded and rankscored for plumage and soft part characters showing unusual color variation. Nonparametric statistical analyses of these data suggest the presence of four distinct systems of pigmentation, and multifactorial inheritance probably operates in each group, although no genetic studies have yet been made.--From summ. Courtesy/ Paul A. Stewart.

Eckman, Michael K. HELMINTH PARASITES OF THE KILLDEER IN COLORADO. *J. Parasitol.* 54(6): 1143. Dec. 1968. *WR 138: 68*
[Auburn Univ., Auburn, Ala.]

Escalante, Rodolfo. NOTES ON THE CAYENNE TERN IN URUGUAY. *Condor* 72(1): 89-94, 1 fig. Jan. 1970. *WR 138: 68*
[Guayaqui 3425, Apto. 301, Montevideo, Uruguay.] Descriptions of plumages and molts of *Sterna sandvicensis eurygnatha* and its occurrence in Uruguay.--Courtesy/ Paul A. Stewart.

Fordham, R. A. DISPERSION AND DISPERSAL OF THE DOMINICAN GULL IN WELLINGTON, NEW ZEALAND. *Proc. New Zealand Ecol. Soc.* 15: 40-50. 1968. [From Auk 87(1), 1970.] *WR 138: 69*

Griffiths, John, and Gwilym Griffiths. FISH JUMPING INTO HERON'S MOUTH. *British Birds* 62(9): 382-383. Sept. 1969. *WR 138: 69*
[26 Gwaelodygrath, Merthyr Tydfil, Glamorgan, Wales.] The heron waited by a low waterfall for small fish to leap through his open mandibles to the stream above. There appeared to be enough fish leaping the fall for the heron to catch two to four per minute.

Gwynn, A. M. THE MIGRATION OF THE ARCTIC TERN. *Australian Bird Bander* 6(4): 71-75. 1968. [From Bird-Banding 40(4), 1969.] *WR 138: 69*

Harris, Michael P. THE BIOLOGY OF AN ENDANGERED SPECIES, THE DARK-RUMPED PETREL *(PTERODROMA PHAEOPYGIA)*, IN THE GALÁPAGOS ISLANDS. *Condor* 72(1): 76-84, 5 figs. Jan. 1970. *WR 138: 69*
[Edward Grey Inst., Botanic Garden, Oxford, England.] Eggs were laid between 16 June and 10 August. Birds molted away from the Galápagos outside the breeding season. The breeding biology is similar to that of many Procellariiformes, with long incubation and fledging periods and lengthy incubation spells. Nesting success was extremely low (four young fledged out of 67 eggs laid) due almost certainly to predation by *Rattus rattus*.--From summ. Courtesy/ Paul A. Stewart.

Höhn, E. Otto. GONADAL HORMONE CONCENTRATIONS IN NORTHERN PHALAROPES IN RELATION TO NUPTIAL PLUMAGE. *Canadian J. Zool.* 48(2): 400-401. Mar. 1970. *WR 138: 69*
[Univ. Alberta, Edmonton, Alberta, Canada.] Abstract: A sample of prebreeding season gonads of northern phalaropes showed a high ovarian ratio of testosterone/ estradiol, and a greater concentration of testosterone in the ovaries than in the testes. These features correspond to those found in the gonads of Wilson's phalarope and differ from those found in the gonads of four other species of birds. In conjunction with the earlier demonstration that the nuptial plumage in this species is androgen-dependent, these facts explain the more colorful nuptial plumage of the female compared to that of the male northern phalarope.

Lassey, P. A., and M. E. Greenhalgh. AGE RATIOS OF LITTLE GULLS ON PASSAGE IN LANCASHIRE. *British Birds* 62(9): 385-386. Sept. 1969. *WR 138: 69*
[6 Catherine Slack, Hove Edge, Brighouse, Yorkshire, England.] *"Larus minutus."*

Littlefield, Carroll D. FLIGHTLESSNESS IN SANDHILL CRANES. *Auk* 87(1): 157. Jan. 1970. *WR 138: 69*
[Colo. State Univ., Fort Collins.] Two molting sandhill cranes *(Grus canadensis)* had lost all of their flight feathers.--Courtesy/ Paul A. Stewart.

Modha, M. L., and M. J. Coe. NOTES ON THE BREEDING OF THE AFRICAN SKIMMER *RYNCHOPS FLAVIROSTRIS* ON CENTRAL ISLAND, LAKE RUDOLF. *Ibis* 111(4): 593-598, 2 figs. Oct. 1969. *WR 138: 69*
[Kenya Game Dept., P.O. Box 241, Nairobi, Kenya.] Mean clutch size was 1.8 eggs per nest. The eggs and young suffered considerable mortality.

Niethammer, G. HAGEL ERSCHLÄGT KIEBITZE *(VANELLUS VANELLUS)*. [HAIL KILLED LAPWINGS *(VANELLUS VANELLUS)*.] *Vogelwarte* 24: 107-109. 1967. [From Auk 87 (1), 1970. In German.] *WR 138: 69*
Hail killed 300 of 1,000 lapwings.

Price, Roger D. TWO NEW SPECIES OF *COLPROCEPHALUM* (MALLOPHAGA: MEMOPONIDAE) FROM THE GRUIFORMES. *J. Parasitol.* 54(4): 686-689, 4 figs. Aug. 1968. *WR 138: 69*
[Univ. Minn., St. Paul.]

Pursglove, Samuel Richard, Jr. A SURVEY OF THE INTERNAL PARASITE FAUNA OF AMERICAN WOODCOCK IN THE CANAAN VALLEY OF WEST VIRGINIA. *M.S. thesis, W. Va. Univ.* vii + 86 p. 1969. *WR 138: 70*

Thirteen species of helminths were encountered in 76 specimens collected from Canaan Valley, W. Va. Statistical analysis revealed a significant difference in the prevalence of cestode infections between resident and migrant host populations. Age-dependent and sex-dependent parasite burdens were significant for several helminth species. Pathological effects caused by some species included blockage, severe hemorrhagic lesions of the small intestine, and tissue damage.--From concl.

Rieffenberger, Joseph C., and Fred Ferrigno. WOODCOCK BANDING ON THE CAPE MAY PENINSULA, NEW JERSEY. *Bird-Banding* 41(1): 1-10, 1 fig. Jan. 1970. *WR 138: 70*

[Dept. Nat. Resources, Elkins, W. Va.] Large numbers of woodcock migrating toward their winter range can be captured and banded by nightlighting. Working from a spotlight-equipped vehicle was more successful than approaching on foot.--From summ. Courtesy/ Paul A. Stewart.

Samorodov, Yu. A., and V. F. Ryabov. [ON THE ECOLOGY OF THE GREAT BLACK-HEADED GULL IN THE KUSTANAI REGION.] *Vestnik Moskovskogo Univ., Biol. Soil Sci. Div.* 24(1): 32-37. 1969. [From Bird-Banding 41(1), 1970. In Russian.] *WR 138: 70*

Schmidt, Gerald D. *POLYMORPHUS PETROCHENKOI* SP. N. (ACANTHOCEPHALA) FROM THE RED PHALAROPE, *PHALAROPUS FULICARIUS* L., IN ALASKA. *J. Parasitol.* 55(2): 335-336, 6 figs. Apr. 1969. *WR 138: 70*

[Colo. State Coll., Greeley.]

Southern, William E. ORIENTATION BEHAVIOR OF RING-BILLED GULL CHICKS AND FLEDGLINGS. *Condor* 71(4): 418-425, 8 figs. Oct. 1969. *WR 138: 70*

[Northern Ill. Univ., DeKalb.] More than half (57.8%) of the 294 chicks indicated preferences for headings of E, S, or SE, which correspond to the primary fall migration routes for the population.--From summ. Courtesy/ Paul A. Stewart.

Spitz, F. RYTHMES D'ACTIVITÉ LIÉS AUX MARÉES CHEZ LES OISEAUX DE RIVAGE. [THE EFFECT OF TIDAL ACTION UPON THE ACTIVITY RHYTHMS OF SHOREBIRDS.] *Ann. Epiphyties* 19(1): 225-226. 1968. In French. *WR 138: 70*

[Centre Natl. Recherches Zootechniques, Jouy-en-Josas, France.]

Stănescu, Dan. OBSERVATII ASUPRA SPECIILOR *RECURVIROSTRA AVOSETTA* L. 1758 (CIOCÎNTORS) SI *STERNA HIRUNDO* L. 1758 (CHIRĂ), ÎNTR-O COLONIE MIXTĂ. [OBSERVATIONS ON THE AVOCET *(RECURVIROSTRA AVOSETTA)* AND THE COMMON TERN *(STERNA HIRUNDO)* AT A MIXED COLONY ON BEIBUGEAC (ROMANIA).] *Ocrotirea Naturii* 13(1): 73-82, 12 figs. 1969. In Romanian with German summ. *WR 138: 70*

[Muz. Stiinte Nat., Piatra-Neamt, Romania.]

Štromar, L. VIERJÄHRIGE SILBERMÖWENBERINGUNG, *LARUS ARGENTATUS* PONTOPP., AUF DEN INSELCHEN MRKAN UND BOBARA IN DALMATIEN. [FOUR YEARS' BANDING RESULTS FOR HERRING GULL *(LARUS ARGENTATUS)* ON MRKAN AND BOBARA ISLANDS OF DALMATIA.] *Larus* 19(1965): 133-144. 1967. [From Auk 87(1), 1970. In Serbo-Croatian with German summ.] *WR 138: 70*

Tovar S., Humberto, and N. Philip Ashmole. A BREEDING RECORD FOR THE GRAY-HOODED GULL, *LARUS CIRROCEPHALUS*, ON THE PERUVIAN COAST. *Condor* 72(1): 119-122, 2 figs. Jan. 1970. *WR 138: 70*

[Inst. del Mar del Perú, Apartado 3734, Collao, Lima, Perú.] Breeding occurs in coastal lagoons in southern Peru and northern Chile. Laying season in 1967 lasted 4.5 months at a colony of about 20 adults.--Courtesy/ Paul A. Stewart.

Ulmer, Martin J. *GIGANTOBILHARZIA* SP. (TREMATODA: SCHISTOSOMATIDAE) FROM THE RING-BILLED GULL IN IOWA. *J. Parasitol.* 54(6): 1131-1132, 4 figs. Dec. 1968. *WR 138: 70*

[Iowa State Univ., Ames.]

Vernon, J. D. R. BLACK-HEADED GULLS FOLLOWING BOATS AT NIGHT. *British Birds* 62(9): 386-387. Sept. 1969. *WR 138: 71*
[55 Wolfridge Ride, Alvestown, Bristol, England.] Nocturnal feeding.

Walden, Ryan B., and John R. Quinn. CAPTIVE REARING OF SHOREBIRDS. *Modern Game Breeding* 6(3): 10-11, illus. Jan. 1970. *WR 138: 71*
"Charadrius melodus and *Actitus macularia."*

Walters, Michael P. HERRING AND LESSER BLACK-BACKED GULLS FOLLOWING BOATS AT NIGHT. *British Birds* 62(9): 387. Sept. 1969. *WR 138: 71*
[74 Grange Road, Ealing, London, England.] Nocturnal feeding of *Larus argentatus* and *L. fuscus.*

Weaver, David K., and John A. Kadlec. A METHOD FOR TRAPPING BREEDING ADULT GULLS. *Bird-Banding* 41(1): 28-31, 1 fig. Jan. 1970. *WR 138: 71*
[Univ. Mich., Ann Arbor.] Funnel-entrance traps were placed on nests in which eggs were being incubated.--Courtesy/ Paul A. Stewart.

Westernhagen, W. V. LIMICOLEN-VORKOMMEN AN DER WESTAFRIKANISCHEN KÜSTE AUF DER BANC D'ARGUIN (MAURETANIAN). [SHOREBIRD-MIGRATION ON THE WEST AFRICAN COAST AT CAPE D'ARGUIN (MAURITANIA).] *J. Ornithol.* 109: 185-205. 1968. [From Auk 87 (1), 1970. In German with French summ.] *WR 138: 71*

Wickler, W. ÜBER DEN FUSSGEBRAUCH DES PURPURHUHNS *(PORPHYRIO).* [ON THE USE OF FEED BY PURPLE GALLINULE.] *J. Ornithol.* 109: 446-449. 1968. [From Auk 87 (1), 1970. In German with English summ.] *WR 138: 71*
Abstract: The purple gallinule in Kenya holds water-lily buds in its feet while feeding.

Williams, Lovett E., Jr. SPRING DEPARTURE OF SANDHILL CRANES FROM NORTHERN FLORIDA. *Auk* 87(1): 156-157. Jan. 1970. *WR 138: 71*
[Fla. Game & Fresh Water Fish Comm., Gainesville.] The birds *(Grus canadensis)* spiralled upward to 1000-1500 feet above the ground before establishing a "V" flock formation and heading northward.--Courtesy/ Paul A. Stewart.

HAWKS & OWLS

Bezzel, Einhard, and Jochen Hölsinger. UNTERSUCHUNGEN ZUR NAHRUNG DES ROT-FUSSFALKEN *(FALCO VESPERTINUS)* BEI ULM. [INVESTIGATIONS OF THE FEEDING HABITS OF *FALCO VESPERTINUS* AT ULM.] *Anz. Ornithol. Gesell. Bayern.* (Munich) 8(5): 446-451. June 1969. [From J. Mammal. 51(1, suppl.), 1970. In German with English summ.] *WR 138: 71*

Black, Gladys B. 1969 TURKEY VULTURE OBSERVATIONS AT RED ROCK REFUGE. *Iowa Bird Life* 39(4): 78-80, 1 fig. Dec. 1969. *WR 138: 71*
[608 DeWitt, Pleasantville, Iowa.] The area is apparently both a roost and a migratory stop-over. Daily counts for the period 23 Aug.-12 Oct. are tabulated.

Brown, Leslie H. STATUS AND BREEDING SUCCESS OF GOLDEN EAGLES IN NORTH-WEST SUTHERLAND IN 1967. *British Birds* 62(9): 345-363. Sept. 1969. *WR 138: 71*
[Box 23916, Karen, Kenya.] The area supports a large population of *Aquila chrysaetos* in terrain with an apparently very poor natural food supply. Eighteen pairs inhabit the 380-square mile area and utilize the abundant carrion, particularly dead lambs. Breeding success is low. This may be due to human interference.

Caesar, Arndt-Christian. WEISSKOPFGEIER *(GYPS FULVUS)* IN DEN HOHEN TAUERN. [THE GRIFFIN-VULTURE *(GYPS FULVUS)* IN HOHE TAUERN (AUSTRIA).] *Ornithol. Mitteil.* 22(1): 12-15. Jan. 1970. In German. *WR 138: 71*
[28 Graf-Schwerin-Strasse, Aachen, Germany.]

Cave, A. J. THE BREEDING OF THE KESTREL, *FALCO TINNUNCULUS* L., IN THE RECLAIMED AREA OOSTELIJK FLEVOLAND. *Netherlands J. Zool.* 18: 313-407. 1968. [From Auk 87(1), 1970.] *WR 138: 72*

Dekker, Dick. MIGRATIONS OF DIURNAL BIRDS OF PREY IN THE ROCKY MOUNTAIN FOOTHILLS WEST OF COCHRANE, ALBERTA. *Blue Jay* 28(1): 20-24, [1 fig.]. Mar. 1970. *WR 138: 72*

[3819 - 112A Street, Edmonton, Alberta, Canada.] Observations of migrating goshawk, sharp-shinned hawk, Cooper's hawk, red-tailed hawk, Swainson's hawk, rough-legged hawk, ferruginous hawk, golden eagle, bald eagle, harrier, osprey, prairie falcon, merlin, and American kestrel.

Dunstan, Thomas C. BREEDING SUCCESS OF OSPREY IN MINNESOTA FROM 1963 TO 1968. *Loon* 40(4): 109-112, 3 figs. Dec. 1968. *WR 138: 72*

Average brood size for the six-year period was 1.58 young per successful nest. The number of successful nests has decreased steadily.

Enderson, James H., Frank A. Colley, and John Stevenson. AERIAL EAGLE COUNT IN COLORADO. *Condor* 72(1): 112. Jan. 1970. *WR 138: 72*

[Colo. Coll., Colorado Springs.] In the area of almost 57,000 square kilometers, 56 golden eagles and 19 adult bald eagles were counted in 1967, and 114 and 46, respectively, in 1968.--Courtesy/ Paul A. Stewart.

Freemyer, Howard, and Sue Freemyer. PROXIMAL NESTING OF HARRIS' HAWK AND GREAT HORNED OWL. *Auk* 87(1): 170. Jan. 1970. *WR 138: 72*

[3615 Memorial Drive, Waco, Texas.] Courtesy/ Paul A. Stewart.

Greaves, J. W. NOTES ON THE AUTUMN PASSAGE OF THE MERLIN, *FALCO COLUMBARIUS*, IN THE NORTH OF IRELAND. *Irish Nat. J.* 16(3): 66-71. 1968. [From Bird-Banding 40(4), 1969.] *WR 138: 72*

Hatch, Daniel E. ENERGY CONSERVING AND HEAT DISSIPATING MECHANISMS OF THE TURKEY VULTURE. *Auk* 87(1): 111-124, 4 figs. Jan. 1970. *WR 138: 72*

[Univ. Nebr., Lincoln.] Because of their large size, migratory instinct, and soaring ability, turkey vultures may not need special energy-conserving mechanisms to endure cold or foodless periods. Heat-dissipating mechanisms include panting, extending the bare portion of the neck, and directing excreta on the legs for evaporative cooling.--From summ. Courtesy/ Paul A. Stewart.

Henny, Charles J. GEOGRAPHICAL VARIATION IN MORTALITY RATES AND PRODUCTION REQUIREMENTS OF THE BARN OWL *(TYTO ALBA* SSP.). *Bird-Banding* 40(4): 277-290, 2 figs. Oct. 1969. *WR 138: 72*

[Migratory Bird Populations Sta., Laurel, Md.] The mortality rate of barn owls is 15% higher among the northern than among the more southern population. Production is also higher among the northern population. To maintain a stable population, 26-57% of the barn owls of breeding age must nest successfully.--Courtesy/ Paul A. Stewart.

Henny, Charles J., and John C. Ogden. ESTIMATED STATUS OF OSPREY POPULATIONS IN THE UNITED STATES. *J. Wildl. Mgmt.* 34(1): 214-217. Jan. 1970. *WR 138: 72*

[Migratory Bird Populations Sta., Laurel, Md.] Abstract: The status of ospreys *(Panion haliaetus carolinensis)* in seven states, as determined by comparison of recently observed rates of production to rates required to maintain a stable population, is discussed. It is estimated that 1.22-1.30 young must be produced per active nest (including unsuccessful nests) to maintain a stable population. The decline in numbers of ospreys was not uniform throughout the United States. The population at Florida Bay, Florida, seemed to be stable as opposed to the estimated 12-14 percent (minimal) annual decline in numbers during the 1960s of localized populations in Connecticut, Maine, Michigan, and Wisconsin. For the same time period, populations in Maryland and Minnesota were estimated to be declining at a 2-3 percent rate annually.

Homei, V., and Alexandrina Popescu. CONTRIBUTII LA STUDIUL HRANEI DE IARNĂ A CIUFILOR *(ASIO OTUS OTUS* L.) DIN ZONA INUNDABILĂ A DUNĂRII. [CONTRIBUTIONS TO THE STUDY OF WINTER FEEDING OF THE LONG-EARED OWL *(ASIO OTUS OTUS)* IN THE FLOOD PLAIN OF THE DANUBE.] *Ocrotirea Naturii* 13(1): 63-67, 1 fig. 1969. In Romanian with French summ. *WR 138: 73*

Hordy, N. FATAL DINNER. *News Letter Thunder Bay Field Nat. Club* 24(1): 11. Feb. 1970. *WR 138: 73*
The great horned owl carried his catch to a utility pole. The center phase insulator proved to be a difficult perch, and as the owl sidestepped for better footing he made contact with the 4,160 volt line.

Imaizumi, Yoshiharu. [ANALYSIS OF URAL OWL PELLET CONTENTS.] *Zool. Mag.* (Tokyo) 77(12): 402-404. Dec. 1968. [From J. Mammal. 51(1, suppl.), 1970. In Japanese with English summ.] *WR 138: 73*

Kraan, C. Van de, and N. J. Van Strien. POLYGAMIE BIJ DE BLAUE KIEKENDIEF *(CIRCUS CYANEUS).* [POLYGAMY IN HEN HARRIER.] *Limosa* 42(1-2): 34-35. 1969. [From Bird-Banding 41(1), 1970. In Dutch with English summ.] *WR 138: 73*

Marti, Carl D. RENESTING BY BARN AND GREAT HORNED OWLS. *Wilson Bull.* 81 (4): 467-468. Dec. 1969. *WR 138: 73*
[Colo. State Univ., Fort Collins.] Renesting in the original nest sites was successful in both cases. A spring snowstorm destroyed the first clutch of the barn owls, while the male great horned owl disappeared during incubation and the female abandoned the first nest.--Courtesy/ Paul A. Stewart.

Mattox, William G. BANDING GYRFALCONS *(FALCO RUSTICOLUS)* IN GREENLAND, 1967. *Bird-Banding* 41(1): 31-37, 2 figs. Jan. 1970. *WR 138: 73*
[Canaan St., Canaan, N.H.] Fourteen birds were weighed, measured, and banded. Two banded birds were recovered at distances of 240 miles and 90 miles from the original banding site.--Courtesy/ Paul A. Stewart.

Meyburg, Bernd-Ulrich. DIE BESIEDLUNG DES NATURSCHUTZGEBIETES KÜHKOPF-KNOBLOCHSAUE MIT GREIFVÖGELN IM JAHRE 1967. [THE BUILD-UP OF THE KÜHKOPF-KNOBLOCHSAUE NATURE RESERVE WITH BIRDS OF PREY DURING 1967.] *Ornithol. Mitteil.* 21(11): 223-230, 6 figs. Nov. 1969. In German with English summ. *WR 138: 73*
[14 Herbertstrasse, Berlin, Germany.] *"Milvus milvus, M. migrans, Buteo buteo* and *Pernis apivorus."* Highest concentration for Germany and probably for central Europe.

Mikkola, Heimo, and Seppo Sulkava. ON OCCURRENCE AND FEEDING HABITS OF SHORT-EARED OWL IN FINLAND 1964-68. *Ornis Fennica* 46(4): 188-193. 1969. In English with Finnish summ. *WR 138: 73*
[Univ. Oulu, Oulu, Finland.]

Moreau, R. E. THE SOOTY FALCON *FALCO CONCOLOR* TEMMINCK. *Bull. British Ornithol. Club* 89: 62-67. 1969. [From Auk 87(1), 1970.] *WR 138: 73*

Nielsen, Bent Pors, and Steen Christensen. ON THE AUTUMN MIGRATION OF SPOTTED EAGLES AND BUZZARDS IN THE MIDDLE EAST. *Ibis* 111(4): 620-621. Oct. 1969. *WR 138: 73*
[Hans Knudsens Plads 1, XI, 2100 Copenhagen Ø, Denmark.]

Radabaugh, Bruce E. FOOD PASSING BY NESTING MARSH HAWKS *(CIRCUS CYANEUS).* *Bird-Banding* 41(1): 41. Jan. 1970. *WR 138: 73*
[2125 Denby Dr., Drayton Plains, Mich.] The male dropped the prey to the female, who seized it with one foot in mid-flight.--Courtesy/ Paul A. Stewart.

Rojas-Ramírez, José A., and Edward S. Tauber. PARADOXICAL SLEEP IN TWO SPECIES OF AVIAN PREDATOR (FALCONIFORMES). *Science* 167(3926): 1754-1755, 2 figs. 27 Mar. 1970. *WR 138: 74*

[Inst. Miles de Terapeutica Exptl., Calzado Xochimilco 77, Mexico, D.F., Mexico.] Abstract: Periods of disconjungate and conjugate eye movements occur during the sleep cycle in *Buteo jamaicensis arborealis* and *Herpetotheres cachinnans chapmanni*. Electromyograms are essentially isoelectric throughout sleep. Slow waves appear only in short bursts of low amplitude in contrast to the long trains of high-amplitude waves reported for chickens and pigeons.

Schmidt, Egon. A MAGYARORSZÁGON TELELŐ ERDEI FÜLESBAGLYOK MEZEI POCOK PUSZTÍTÁSÁNAK ELMÉLETI ÉRTÉKELÉSE KÖPETVIZSGÁLATOK ALAPJÁN. [REGARDING THE EXTERMINATION OF FIELD MICE BY OVER-WINTERING LONG-EARED OWLS *(ASIO OTUS)* IN HUNGARY.] *Aquila* 75: 259-271, 2 figs. 1968. In Hungarian and German. *WR 138: 74*

Schmidt, Egon, and László Szliuka. ADATOK A RÉTIFÜLESBAGOLY *(ASIO FLAMMEUS)* TÉLI TÁPLÁLKOZÁSÁHOZ A BÁCSKÁBAN (ÉSZAK-JUGOSZLÁVIA). [REGARDING THE WINTER-FEEDING OF THE SHORT-EARED OWL *(ASIO FLAMMEUS)* IN THE BACSKA (NORTHERN YUGO-SLAVIA).] *Aquila* 75: 227-229. 1968. In Hungarian and German. *WR 138: 74*

Siegfried, W. R. BREEDING SEASON, CLUTCH AND BROOD SIZES IN VERREAUX'S EAGLE. *Ostrich* 39: 139-145. 1968. [From Auk 87(1), 1970.] *WR 138: 74*

Smith, Dwight G. CLOSE NESTING AND AGGRESSION CONTACTS BETWEEN GREAT HORNED OWLS AND RED-TAILED HAWKS. *Auk* 87(1): 170-171. Jan. 1970. *WR 138: 74*

[Brigham Young Univ., Provo, Utah.] Courtesy/ Paul A. Stewart.

Sperber, Georg. BRUTERGEBNISSE FRÄNKISCHER SPERBER *(ACCIPITER NISUS)*. [BREEDING RESULTS OF FRANKED SPARROW-HAWKS *(ACCIPITER NISUS)*.] *Ornithol. Mitteil.* 22(1): 8-11. Jan. 1970. In German. *WR 138: 74*

Stresemann, E. DER EINGRIFF DER ELEONORENFALKEN IN DEN HERBSTLICHEN VOGELZUG. [THE AMOUNT OF PREDATION DUE TO *FALCO ELEONORAE* ON FALL MIGRANTS.] *J. Ornithol.* 109(4): 472-474. [1968.] [From Bird-Banding 40(4), 1969. In German with English summ.] *WR 138: 74*

"One out of every 600 migrants."

White, Clayton M., and David G. Roseneau. OBSERVATIONS ON FOOD, NESTING, AND WINTER POPULATIONS OF LARGE NORTH AMERICAN FALCONS. *Condor* 72(1): 113-115, 1 fig. Jan. 1970. *WR 138: 74*

[Cornell Univ., Ithaca, N.Y.] *"Falco mexicanus, F. rusticolus,* and *F. peregrinus."*--Courtesy/ Paul A. Stewart.

Wilson, Vivian J. NOTES ON THE BREEDING AND FEEDING HABITS OF A PAIR OF BARN OWLS, *TYTO ALBA* (SCOPOLI), IN RHODESIA. *Arnoldia* 4(34): 1-8, 2 figs. 30 Jan. 1970. *WR 138: 74*

[Natl. Mus., Bulawayo, Rhodesia.]

Yapp, W. B. THE COMPOSITION OF RAPTOR PELLETS. *Ibis* 111(4): 613. Oct. 1969. *WR 138: 74*

[Univ. Birmingham, Birmingham, England.] Weights of kestrel pellets before and after soaking in a 0.5% solution of commercial trypsin.

BLACKBIRDS, STARLINGS, CROWS

Brough, T. THE DISPERSAL OF STARLINGS FROM WOODLAND ROOSTS AND THE USE OF BIO-ACOUSTICS. *J. Appl. Ecol.* 6(3): 403-410 + 1 pl. Dec. 1969. *WR 138: 74*

[Ministry Agr., Fisheries & Food, Worplesdon, Surrey, England.] Summary: Among the various methods of dispersing troublesome roosts of the starling, *Sturnus vulgaris*, the bio-acoustic technique has great promise. Using a portable 12 W amplifier to broadcast recorded distress calls, sometimes assisted by other

scaring measures, attempts have been made to disperse thirty-three roosts. The calls were played when the birds arrived to roost and clearances were usually effected in three evenings or less. Most sites were vacated for the rest of the season although new roosts were sometimes formed less than 2 miles away. The limitations of the technique are discussed.

Caithness, T. A. INSECTS AND BIRDS ON TWO NEW ZEALAND AIRFIELDS. *New Zealand Ent.* 4: 19-23. 1968. [From Ibis 111(4), 1969.] *WR 138: 75*
"Sturnus vulgaris."

Dunnet, G. M., R. A. Fordham, and I. J. Patterson. ECOLOGICAL STUDIES OF THE ROOK *(CORVUS FRUGILEGUS* L.*)* IN NORTH-EAST SCOTLAND. *J. Appl. Ecol.* 6(3): 459-473, 4 figs. Dec. 1969. *WR 138: 75*
[Univ. Aberdeen, Aberdeen, Scotland.] Summary: This paper is concerned with field criteria for allocating rooks to convenient age categories, and with measuring the proportion of juvenile and first-year birds in the population. The pattern of loss of facial feathers is described for individuals and for the population. Correction factors are provided to allow for those birds which have assumed the adult condition. Sampling problems associated with measuring the proportion of young birds in the population are discussed, and data are given for regional and local populations in north-east Scotland. It is clear that changes in the proportion result from movements as well as from mortality. This is particularly evident in situations where most of the young produced locally are shot in control operations.

Goldberg, Isabel. COMMON GRACKLES "ANTING" WITH ORANGES. *Loon* 41(4): 130. Dec. 1969. *WR 138: 75*
[1915 Palace Ave., St. Paul, Minn.]

Gromadzki, Maciej. COMPOSITION OF FOOD OF THE STARLING, *STURNUS VULGARIS* L., IN AGROCENOSES. *Ekologia Polska--Ser. A* 17(16): 287-311. 1969. In English with Polish summ. *WR 138: 75*
Abstract: It has been found that the starling, *Sturnus vulgaris* L., finds 93% of its food on open ground covered by a low vegetation. Eighty per cent of prey are edaphic and epigeous forms, phytophagous and polyphagous and, in some periods, also coprophagous forms being the most abundant among them; they are either the dominant species or those occurring in groups. During its emergence in the spring the Colorado beetle population is being strongly reduced by the starling. The amount of vegetation eaten by the starling in the agrocenoses is of no economic importance.

Hair, Jay D. THE GASTROINTESTINAL HELMINTHS OF THE STARLING *(STURNUS VULGARIS* L.*)* IN WESTERN SOUTH CAROLINA. *M.S. thesis, Clemson Univ.* 52 p. 1969. *WR 138: 75*
[Univ. Alberta, Edmonton, Alberta, Canada.]

Hamilton, William J. III, and William M. Gilbert. STARLING DISPERSAL FROM A WINTER ROOST. *Ecology* 50(5): 886-898, 6 figs. Late Summer 1969. *WR 138: 75*
[Univ. Calif., Davis.] The following are discussed: stops during dispersal, flight lines, temporal pattern of passage, flock size, seasonal changes in arrival times, spatial distribution of dispersing birds, dispersal limits, and effects of overcast skies.--Courtesy/ Paul A. Stewart.

Hartby, E. THE CALLS OF THE STARLING *(STURNUS VULGARIS). Dansk Ornithol. Foren. Tidsskr.* 62: 205-230. 1969. [From Auk 87(1), 1970.] *WR 138: 75*

Horn, Henry S. SOCIAL BEHAVIOR OF NESTING BREWER'S BLACKBIRDS. *Condor* 72 (1): 15-23, 5 figs. Jan. 1970. *WR 138: 75*
[Princeton Univ., Princeton, N.J.] Courtship and other behavior performances by one pair aroused similar performances in other nearby pairs.--Courtesy/ Paul A. Stewart.

Meanley, Brooke, and Gorman M. Bond. MOLTS AND PLUMAGES OF THE RED-WINGED BLACKBIRD WITH PARTICULAR REFERENCE TO FALL MIGRATION. *Bird-Banding* 41(1): 22-27, 1 fig. Jan. 1970. *WR 138: 76*
[Patuxent Wildl. Res. Center, Laurel, Md.] *"Agelaius phoeniceus."*--Courtesy/ Paul A. Stewart.

Orians, Gordon H., and Henry S. Horn. OVERLAP IN FOODS AND FORAGING OF FOUR SPECIES OF BLACKBIRDS IN THE POTHOLES OF CENTRAL WASHINGTON. *Ecology* 50(5): 930-938, 1 fig. Late Summer 1969. *WR 138: 76*
[Univ. Wash., Seattle.] There was little specialization and much overlap in food choices of Brewer's blackbirds *(Euphagus cyanocephalus)*, red-winged blackbirds *(Agelaius phoeniceus)*, yellow-headed blackbirds *(Xanthocephalus xanthocephalus)*, and western meadowlarks *(Sturnella neglecta)*.--Courtesy/ Paul A. Stewart.

Payne, Robert B. BREEDING SEASONS AND REPRODUCTIVE PHYSIOLOGY OF TRICOLORED BLACKBIRDS AND REDWINGED BLACKBIRDS. *Univ. Calif. Publ. Zool.* 90. vi + 114 p., 26 figs. + 10 pls. 1969. Price $4.50. *WR 138: 76*
"Agelaius tricolor and *A. phoeniceus."* Included are the sections entitled: *Techniques; Natural history of blackbirds in spring; The testis; The ovary; Plumage and molt; Weight, fat, and energy balance; The autumnal breeding of tricolored blackbirds; Experimental control of gonadal development.*

Richardson, W. John, and Murray E. Haight. MIGRATION DEPARTURES FROM STARLING ROOSTS. *Canadian J. Zool.* 48(1): 31-39, 4 figs. Jan. 1970. *WR 138: 76*
[Cornell Univ., Ithaca, N.Y.] Abstract: Migration departures from Southern Ontario roosts of the European starling *(Sturnus vulgaris)* have frequently been observed by radar. Departures occurred at the normal time for roost dispersals. The birds usually moved northeast in spring and southwest in autumn, but occasional reverse movements were detected. Most of the sites from which departures were recorded produced normal dispersals and departures on more than one morning. In both spring and autumn, departures in both normal and reverse directions occurred with following winds. In spring, departures in the normal direction occurred with above normal temperatures; in autumn, they occurred with below normal temperatures. When only cases with following winds were considered, these temperature correlations were maintained. No correlation between incidence of departures and temperature change, wind speed, amount of cloud, or relative humidity was detected.

Selander, Robert K., Suh Y. Yang, and Gilbert Cantu. EXTENSION OF ZONE OF SYMPATRY OF *QUISCALUS MEXICANUS* AND *Q. MAJOR*. *Condor* 71(4): 435-436. Oct. 1969. *WR 138: 76*
[Univ. Texas, Austin.] The range of the great-tailed grackle is being gradually extended farther eastward in the southern United States and is overlapping the range of the boat-tailed grackle.--Courtesy/ Paul A. Stewart.

Sen Gupta, S. STUDIES ON THE LIFE OF THE COMMON MYNA *ACRIDOTHERES TRISTIS TRISTIS* (LINNAEUS) (AVES: PASSERIFORMES: STURNIDAE). *Proc. Zool. Soc.* (Calcutta) 21: 1-27. 1968. [From Ibis 111(4), 1969.] *WR 138: 76*

Sterbetz, István. A MAGYARORSZÁGI SZÜRKEVARJAK *(CORVUS C. CORNIX* L.) TÁPLÁLKOZÁSÁNAK ÚJABB GAZDASÁGI ÉRTÉKELÉSE. [SOME INFORMATION ON THE FEEDING HABITS OF THE RAVEN *(CORVUS C. CORNIX* L.) IN HUNGARY. *Aquila* 75: 151-157. 1968. In Hungarian with German summ. *WR 138: 76*

Stewart, Paul A., and J. P. B. Connell. AN EXCESSIVELY LARGE BUT UNFINISHED STARLING NEST. *Auk* 87(1): 163. Jan. 1970. *WR 138: 76*
[Agr. Res. Serv., USDA, Oxford, N.C.] A pair of starlings *(Sturnus vulgaris)* attempted to build a nest on a building ledge four inches wide 18 feet above the ground, but the material continued to fall from the ledge until a pile of material accumulated on the floor 6 feet and 3.5 feet in diameter.

Studer-Thiersch, Adelheid. DAS ZUGVERHALTEN SCHWEIZERISCHER STARE *STURNUS VULGARIS* NACH RINGFUNDEN. [THE MIGRATION BEHAVIOR OF SWISS STARLINGS *(STURNUS VULGARIS)* FROM BANDING RETURNS.] *Ornithol. Beobachter* 66(4): 105-144, 18 figs. Aug. 1969. In German with English summ. *WR 138: 77*
[64 Davidsbodenstrasse, Basel, Switzerland.]

OTHER BIRDS

Bell, H. L. DISTRACTION DISPLAY OF THE FAWN-BREASTED BOWERBIRD. *Emu* 69(4): 242. Dec. 1969. *WR 138: 77*
[21 Jagara St., Aranda, Australia.] *"Chlamydera maculata."*

Burton, R. W. BREEDING BIOLOGY OF THE BROWN SKUA, *CATHARACTA SKUA LÖNNBERGI* (MATHEWS) AT SIGNY ISLAND, SOUTH ORKNEY ISLANDS. *British Antarctic Surv. Bull.* 15: 9-28. 1968. [From Bird-Banding 40(4), 1969.] *WR 138: 77*

Diczbalis, S. OBSERVATIONS ON THE CRESTED BOWERBIRD, *AMBLYORNIS MACGREGORIAE. Misc. Repts. Yamashina's Inst. Ornithol.* 5(3): 199-203 + 6 pls. 1968. [From Bird-Banding 41(1), 1970. In English with Japanese summ.] *WR 138: 77*

Eriksson, Kalervo. ON OCCURRENCE AND ECOLOGY OF BLYTH'S REED WARBLER *(ACROCEPHALUS DUMETORUM)* AND MARSH WARBLER *(A. PALUSTRIS)* IN FINLAND. *Ornis Fennica* 46(4): 157-170, 6 figs. 1969. In English with Finnish summ. *WR 138: 77*
[Res. Labs. State Alckol Monopoly, Helsinki, Finland.]

Fintha, István. MEGFIGYELÉSEK A SZAMOS MENTI GYURGYALAGOK *(MEROPS APIASTER)* FÉSZKELÉSI VISZONYAIRÓL ÉS TÁPLÁLKOZÁSÁRÓL. [INVESTIGATIONS OF THE BEE-EATER *(MEROPS APIASTER)*, ITS BREEDING AND FEEDING HABITS ALONG THE SZAMOS RIVER (EASTERN HUNGARY).] *Aquila* 75: 93-109. 1968. In Hungarian and German. *WR 138: 77*

Győrfi, Sándor. ADATOK A TÖVISSZÚRÓ GÉBICS *(LANIUS COLLURIO* L.) ÖKOLÓGIÁJÁHOZ. [CONTRIBUTION TO THE ECOLOGY OF THE RED-BACKED SHRIKE *(LANIUS COLLURIO* L.).] *Aquila* 75: 159-192, 12 figs. 1968. In Hungarian and German. *WR 138: 77*

Horstkotte, E. STUDIEN ÜBER ZEIT, ZAHL UND GRÖSSE VON BRUTEN DER NACHTIGALL *(LUSCINIA MEGARHYNCHOS* BREHM). [STUDIES ON THE TIME AND MAGNITUDE OF BREEDING OF THE NIGHTINGALE *(LUSCINIA MEGARHYNCHOS* BREHM).] *J. Ornithol.* 110: 62-70. 1969. [From Ibis 111(4), 1969. In German.] *WR 138: 77*

Jost, O. ÜBER DIE BEDEUTUNG DER WASSERSCHEIDEN BEIM ORTSWECHSEL DER WASSERAMSEL *(CINCLUS CINCLUS AQUATICUS).* [ON THE SIGNIFICANCE OF WATERSHEDS ON THE EXCHANGE OF DIPPERS *(CINCLUS CINCLUS AQUATICUS).*] *J. Ornithol.* 110: 71-78. 1969. [From Ibis 111(4), 1969. In German.] *WR 138: 77*

Larson, Edwin R. A NESTING STUDY OF THE COMMON NIGHTHAWK. *Ky. Warbler* 46 (1): 3-6, [1 fig.]. Feb. 1970. *WR 138: 77*
[105 South 14th Street, Murray, Ky.] Eleven egg sites were studied from the time they were found until they were abandoned or the young fledged. All nests were on the roofs of three- or four-story buildings at Murray State University. Thirteen of the nineteen young perished before reaching maturity.

Longcore, Jerry R., and Robert E. Jones. REPRODUCTIVE SUCCESS OF THE WOOD THRUSH IN A DELAWARE WOODLOT. *Wilson Bull.* 81(4): 396-406, 1 fig. Dec. 1969. *WR 138: 77*
[Patuxent Wildl. Res. Center, Laurel, Md.] Of 93 wood thrush *(Hylocichlo mustelina)* nests, 35 were successful. Mean clutch size decreased from May to July. The greatest nesting success was associated with late season nests, spice bush and black gum vegetation, and nesting locations less than 8.5 feet above ground.--From summ. Courtesy/ Paul A. Stewart.

Medway, Lord, and D. R. Wells. DARK ORIENTATION BY THE GIANT SWIFTLET *COLLOCALIA GIGAS*. *Ibis* 111(4): 609-611. Oct. 1969. *WR 138: 78*
[Univ. Malaya, Kuala Lumpur, Malaya.] The swiftlet was unwilling to fly in total darkness and was unable to avoid collision with objects. It appeared able to orientate visually in dim light.

Michael, Edwin D. THE EVENING GROSBEAK IN EASTERN TEXAS. *Bird-Banding* 41 (1): 40. Jan. 1970. *WR 138: 78*
[Stephen F. Austin State Univ., Nacogdoches, Texas.] As many as 1,100 *Hesperiphona vespertina* were present near Nacogdoches, Texas at one time during the winter of 1968-69.--Courtesy/ Paul A. Stewart.

Michev, T. [THE BIOLOGY OF THE BURROWING KINGFISHER *(ALCEDO ATTHIS ATTHIS* LINNAEUS*)* IN THE "SREBURNA" RESERVE IN THE DISTRICT OF SILISTRA.] *(Bulgarian Acad. Sci.)* 20: 175-182. 1966. [From Ibis 111(4), 1969. In Bulgarian. An English translation has been deposited in the Alexander Library of the Edward Grey Institute of Field Ornithology at Oxford, England.] *WR 138: 78*

Miller, Wayne. FACTORS INFLUENCING THE STATUS OF EASTERN AND MOUNTAIN BLUEBIRDS IN SOUTHWESTERN MANITOBA. *Blue Jay* 28(1): 38-46, 2 figs. Mar. 1970. *WR 138: 78*
[2 Almond Crescent, Brandon, Manitoba, Canada.] Nesting data from a six-year study are presented.

Ottow, J., and J. A. Verheijen. ZUR LEBENSWEISE DER KUCKUCKE VON FLORES. [ON THE HABITS OF THE FLORES CUCKOOS.] *J. Ornithol.* 110: 27-29. 1969. [From Ibis 111(4), 1969. In German.] *WR 138: 78*

Petersen, Peter, Jr. SUMMARY OF AN EIGHT YEAR SURVEY OF BLUEBIRD NESTING BOXES IN EASTERN IOWA. *Iowa Bird Life* 39(4): 75-78, 1 fig. Dec. 1969. *WR 138: 78*
[235 McClellan Blvd., Davenport, Iowa.] More than half the 23 to 39 boxes were used nearly every season, but only 17 to 44% of the boxes produced fledglings.

Peterson, Clell T. CLIFF SWALLOWS BREEDING IN LAND BETWEEN THE LAKES AREA. *Ky. Warbler* 46(1): 7-9. Feb. 1970. *WR 138: 78*
[Murray State Univ., Murray, Ky.] Cliff swallow colonies in western Kentucky were surveyed in 1969. Twenty-five nest sites were located with an estimated total of 2267 nests in the active colonies.

Reed, R. A. NOTES ON THE RED-CHESTED CUCKOO IN THE TRANSVAAL. *Ostrich* 40: 1-4. 1969. [From Ibis 111(4), 1969.] *WR 138: 78*
"Cuculus solitarius."

Rékási, József. ADATOK A *PASSER DOMESTICUS DOMESTICUS* (L.) TÁPLÁLKOZÁS-BIOLÓGIÁKÁHOZ. [ON THE NUTRITION OF THE HOUSE SPARROW *(PASSER DOMESTICUS* L.*).*] *Aquila* 75: 111-129. 1968. In Hungarian and German. *WR 138: 78*

Ruge, K. ZUR BIOLOGIE DES DREIZEHENSPECHTS *PICOIDES TRIDACTYLUS* L. [THE BIOLOGY OF THE NORTHERN THREE-TOED WOODPECKER.] *Ornithol. Beobachter* 65(3): 109-123. 1968. [From Bird-Banding 40(4), 1969. In German with English summ.] *WR 138: 78*

Simpson, Marcus B., Jr. THE PROTHONOTARY WARBLER IN THE CAROLINA PIEDMONT. *Chat* 33(2): 31-37, 1 fig. June 1969. *WR 138: 78*
[Univ. N.C., Chapel Hill.] What appears as inland range expansion may represent a return to formerly occupied territory. The creation of lakes, the cutting of forests, and the eventual turnover of farm land into woodland have undoubtably had a significant impact on the distribution of this species.

OTHER BIRDS--Continued

Stonehouse, Bernard. EMPEROR PENGUINS *APTENODYTES FORSTERI* AT FRANKLIN ISLAND, ROSS SEA, ANTARCTICA. *Ibis* 111(4): 627-628. Oct. 1969. *WR 138: 79*
[Univ. British Columbia, Vancouver, British Columbia, Canada.] A high proportion of chicks probably survive early December dispersal and complete their molt in the ice pack.

Thomas, D. G. COMPOSITION OF FLAME ROBIN FLOCKS WINTERING IN TASMANIA. *Emu* 69(4): 240-241. Dec. 1969. *WR 138: 79*
[9 Lallaby Rd., Moonah, Tasmania.] The total numbers of adult males and brown (female and immature) birds seen each weekend from March through August are recorded in two tables.

Tyrvainen, H. THE BREEDING BIOLOGY OF THE RED-WING *(TURDUS ILIACUS* L.). *Ann. Zool. Fenn.* 6(1): 1-46. 1969. [From Bird-Banding 41(1), 1970.] *WR 138: 79*

Vermeer, Kees. SOME ASPECTS OF THE NESTING OF DOUBLE-CRESTED CORMORANTS AT CYPRESS LAKE, SASKATCHEWAN, IN 1969; A PLEA FOR PROTECTION. *Blue Jay* 28(1): 11-13, 3 figs. Mar. 1970. *WR 138: 79*
[Canadian Wildl. Serv., Edmonton, Alberta, Canada.] The island is the nesting site of more than one-third of the breeding population of cormorants in Saskatchewan. Colonies of California gulls, ring-billed gulls, white pelicans, and double-crested cormorants are also present.

Zonov, G. B. [ON THE WINTER ECOLOGY OF TITS IN CISBAIKAL.] *Izvest. Sibirskogo Otdel. Akad. Nauk SSSR, Ser. Biol.* 1969(5): 61-64. 1969. [From Bird-Banding 41 (1), 1970. In Russian.] *WR 138: 79*
"Parus palustris and *P. montanus."*

REPTILES & AMPHIBIANS

Altig, Ronald. A KEY TO THE TADPOLES OF THE CONTINENTAL UNITED STATES AND CANADA. *Herpetologica* 26(2): 180-207, 3 figs. June 1970. *WR 138: 79*
[Miss. State Univ., State College.] Abstract: A key to the tadpoles of the continental United States and Canada in developmental stages 25 through 40 of Gosner is presented. A standard terminology is suggested, and methods of preservation and storage are discussed. Generic synopses and a bibliography concerning identification of tadpoles are included.

Black, Jeffrey Howard. A CAVE DWELLING POPULATION OF *AMBYSTOMA TIGRINUM MARVORTIUM* IN OKLAHOMA. *J. Herpetol.* 3(3-4): 183-184. Dec. 1969. *WR 138: 79*
[Univ. Okla., Norman.] Larvae and adults were found in or near water near deposits of bat guano and apparently complete their life cycle within the cave.

Blanc, Charles P., and Charles C. Carpenter. STUDIES ON THE IGUANIDAE OF MADAGASCAR III. SOCIAL AND REPRODUCTIVE BEHAVIOR OF *CHALARODON MADAGASCARIENSIS. J. Herpetol.* 3(3-4): 125-134, 7 figs. Dec. 1969. *WR 138: 79*
[Univ. Madagascar, Tananarive, Madagascar.] The disjunct monotypic iguanid *Chalarodon madagascariensis* exhibits social behavior patterns typical of western hemisphere iguanids. Social structure is based upon territoriality, primarily in the larger males. Courtship procedures and territorial defense displays are typically iguanid.--From concl.

Boice, Robert, and David W. Witter. HIERARCHICAL FEEDING BEHAVIOUR IN THE LEOPARD FROG *(RANA PIPIENS). Animal Behaviour* 17(3): 474-479 + 3 figs. on 2 pls. Aug. 1969. *WR 138: 79*
[Univ. Mo., Columbia.]

Brockelman, Warren Y. AN ANALYSIS OF DENSITY EFFECTS AND PREDATION IN *BUFO AMERICANUS* TADPOLES. *Ecology* 50(4): 632-644, 7 figs. Summer 1969. *WR 138: 80*
[SEATO Med. Res. Lab., Bangkok, Thailand, APO San Francisco, Calif.] Time of metamorphosis, individual growth variability, and mortality were directly related to initial tadpole density, and transformation size was inversely related. The addition of food produced a density-dependent increase in growth rate, and density-related mortality was correlated with variations in growth rate.--Courtesy/ Paul A. Stewart.

Burns, Thomas. TEMPERATURE OF YARROW'S SPINY LIZARD *SCELOPORUS JARROVI* AT HIGH ALTITUDES. *Herpetologica* 26(1): 9-16, 2 figs. Mar. 1970. *WR 138: 80*
[Northwestern State Coll., Natchitoches, La.]

Bury, R. Bruce. FOOD SIMILARITIES IN THE TAILED FROG, *ASCAPHUS TRUEI*, AND THE OLYMPIC SALAMANDER, *RHYACOTRITON OLYMPICUS*. *Copeia* 1970(1): 170-171. 2 Mar. 1970. *WR 138: 80*
[Univ. Calif., Berkeley.]

Bustard, H. Robert. ACTIVITY CYCLE OF THE TROPICAL HOUSE GECKO, *HEMIDACTYLUS FRENATUS*. *Copeia* 1970(1): 173-176, 3 figs. 2 Mar. 1970. *WR 138: 80*
[Australian Natl. Univ., Canberra, Australia.]

Bustard, H. Robert. THE ADAPTIVE SIGNIFICANCE OF COLORATION IN HATCHLING GREEN SEA TURTLES. *Herpetologica* 26(2): 224-227, 1 fig. June 1970. *WR 138: 80*
[Australian Natl. Univ., Canberra, Australia.] Abstract: The color pattern of hatchling green turtles is an example of countershading. However, the black dorsal coloration has the disadvantage of making the hatchlings conspicuous to predators when crossing pale-colored sand to the sea. Furthermore, those hatchlings which emerge during the day rapidly reach lethal body temperatures through radiation effects (potentiated by the black carapace). It is suggested that the black carapace plays an important role in elevating the hatchling turtles' body temperatures when they are floating at the surface of the sea. Experimental data are given to demonstrate this effect. Increased body temperature will result in faster growth due to the stimulatory effect on metabolism. A more rapid growth rate during an extremely vulnerable stage of the life history will have survival value. Presumably the black dorsal coloration is retained because this increased survival more than offsets the loss from terrestrial disadvantages.

Calhoon, Robert E., and David L. Jameson. CANONICAL CORRELATION BETWEEN VARIATION IN WEATHER AND VARIATION IN SIZE IN THE PACIFIC TREE FROG, *HYLA REGILLA*, IN SOUTHERN CALIFORNIA. *Copeia* 1970(1): 124-144, 3 figs. 2 Mar. 1970. *WR 138: 80*
[Univ. Calif., San Francisco.] Of the criteria, snout-vent length and head width made the major contribution leading to the conclusion that there was a correlation between morphological variation, and variation in the weather during the development of frogs along the transect for the year of the study. These correlations are interpreted as compromises between the interacting selective forces.--From abstr.

Campbell, James B. HIBERNACULA OF A POPULATION OF *BUFO BOREAS BOREAS* IN THE COLORADO FRONT RANGE. *Herpetologica* 26(2): 278-282, 2 figs. June 1970. *WR 138: 80*
[Mountain Res. Sta., Mederland, Colo.] Abstract: Boreal toads *(Bufo boreas boreas)* moved 900 m from their summer habitat at 3,070 m to their hibernacula at 2,975 m. The 5 hibernacula examined were chambers in rocky till and together contained more than 30 toads. Slowly flowing groundwater directly beneath the hibernating toads kept the air temperature within the chambers at slightly above 0.0 C. The hibernacula were insulated by a heavy snow cover. Toads entered the hibernacula in late September and emerged in early May. One toad lost 18.4% of its body weight during hibernation. There was apparently no mortality among the toads at these sites.

XUM

Carr, Archie. GREEN SEA TURTLES IN PERIL. *Natl. Parks Magazine* 44(271): 19-24, illus. Apr. 1970. *WR 138: 81*
[Univ. Fla., Gainesville.] "It seems certain that saving the Caribbean sea turtles will require an integrated international effort, grounded not on parochial self-interest but on the facts of ecologic zoogeography. It seems equally clear that, unless such an effort is made, the present decline of turtles will accelerate, the people of the seaside Caribbean will lose an age-old asset, and some species of Caribbean turtles will disappear completely."

Childress, John R. OBSERVATIONS ON THE REPRODUCTIVE CYCLE OF *AGAMA STELLIO PICEA*. *Herpetologica* 26(1): 149-155, 2 figs. Mar. 1970. *WR 138: 81*
[Univ. Calif., Riverside.] Abstract: Reproductive data on *Agama stellio picea* Parker was studied from November 1968 to June 1969. Females 90 mm S-V length or greater and males 100 mm S-V length or greater were considered as adult. Volume of adult testes decreased from November to May. The percentage of adult males with motile sperm at the terminal end of the vas deferens was highest in March, April, and May, indicating the height of the breeding season. An average clutch of 10 eggs was determined from examinations of oviducal contents. Oviposition probably begins in early summer. During May, small colorless ovarian follicles, larger yolk-laden ovarian follicles and oviducal eggs were found together, indicating two clutches may be laid per year. The year-round activity may account for the extended sexual activity.

Clark, Donald R., Jr., and Russell J. Hall. FUNCTION OF THE BLUE TAIL-COLORATION OF THE FIVE-LINED SKINK *(EUMECES FASCIATUS)*. *Herpetologica* 26(2): 271-274. June 1970. *WR 138: 81*
[Texas A&M Univ., College Station.] Abstract: The bright blue tail in juveniles of *Eumeces fasciatus* and several other species of skinks has been thought to function as a decoy, diverting the attention of predators to this "expendable part" of the body. This theory is inadequate to account for the evolution of the blue coloration, because: it overlooks the probability that a cryptically colored tail would make discovery by predators less likely; it does not account for loss of the blue coloration at maturity; and it does not explain the evolution of markedly different colors on tails of juveniles and jaws of breeding males. We propose that the blue coloration serves an intraspecific function, inhibiting attack by aggressive adult males. Inferential and experimental evidence supports this idea.

Coates, Michael, Ellen Benedict, and Charles L. Stephens. AN UNUSUAL AGGREGATION OF THE NEWT *TARICHA GRANULOSA GRANULOSA*. *Copeia* 1970(1): 176-178, 1 fig. 2 Mar. 1970. *WR 138: 81*
[Univ. Oreg., Portland.]

Collins, Richard F. THE HELMINTHS OF *NATRIX* SPP. AND *AGKISTRODON PISCIVORUS PISCIVORUS* (REPTILIA: OPHIDIA) IN EASTERN NORTH CAROLINA. *J. Elisha Mitchell Sci. Soc.* 85(4): 141-144. Winter 1969. *WR 138: 81*
[Univ. Okla. School of Health, 800 N.E. 13th St., Oklahoma City.]

Dalrymple, George H. CADDIS FLY LARVAE FEEDING UPON EGGS OF *AMBYSTOMA T. TIGRINUM*. *Herpetologica* 26(1): 128-129. Mar. 1970. *WR 138: 81*
[Rutgers Univ., Newark, N.J.]

Davis, John D., and Crawford G. Jackson, Jr. COPULATORY BEHAVIOR IN THE RED-EARED TURTLE, *PSEUDEMYS SCRIPTA ELEGANS* (WIED). *Herpetologica* 26(2): 238-240, 1 fig. June 1970. *WR 138: 81*
[Miss. State Coll. Women, Columbus.]

Ernst, Carl H. REPRODUCTION IN *CLEMMYS GUTTATA*. *Herpetologica* 26(2): 228-232. June 1970. *WR 138: 81*
[Southwest Minn. State Coll., Marshall.] Abstract: Reproductive habits of the spotted turtle, *Clemmys guttata*, were studied for 27 months in Lancaster

County, Pennsylvania. Courtship and mating occur from March to early May. Courtship consists of a chase and vicious biting by the male. Nests, the nesting process (occurring in June), eggs, and hatchlings are described. Incubation periods ranged from 70 to 83 days. The earliest hatching occurred on 18 August.

Ernst, Carl H., and Helen F. Hamilton. COLOR PREFERENCES OF SOME NORTH AMERICAN TURTLES. *J. Herpetol.* 3(3-4): 176-180, 1 fig. Dec. 1969. *WR 138: 82*
[Southwest Minn. State Coll., Marshall.] Color preferences were tested in North American turtles of the families Chelydridae, Kinosternidae, Trionychidae, and Emydidae. Turtles with some nocturnal habits apparently prefer the shorter wave lengths of light and the diurnal species prefer the longer wave lengths. Although only a few individuals of Chelydridae and Trionychidae were used, the results seem to indicate that color preferences exist at the family level.

Ewert, J.-P., and B. Rehn. QUANTITATIVE ANALYSE DER REIZ-REAKTIONSBEZIEHUNGEN BEI VISUELLEM AUSLÖSEN DES FLUCHTVERHALTENS DER WECHSELKRÖTE *(BUFO VIRIDIS* LAUR.*)*. [QUANTITATIVE ANALYSIS OF STIMULUS-REACTION RELATIONS OF THE VISUAL SYSTEM IN THE ESCAPE BEHAVIOR OF THE TOAD *(BUFO VIRIDIS).*] *Behaviour* 35(3-4): 212-234, 13 figs. 1969. In German with English summ. *WR 138: 82*
[Zool. Inst. Tech. Hochschule, Darmstadt, Germany.]

Gehlbach, Frederick R. DEATH-FEIGNING AND ERRATIC BEHAVIOR IN LEPTOTYPHLOPID, COLUBRID, AND ELAPID SNAKES. *Herpetologica* 26(1): 24-32, 2 figs. Mar. 1970. *WR 138: 82*
[Baylor Univ., Waco, Texas.] Abstract: Erratic behavior in several leptotyphlopid, colubrid, and elapid snakes is defensive. It startles certain predators, thwarts predatory attack, and prevents injury or death. This behavior, elicited by the appearance or actual attack of a predator, is complex and perhaps resistant to learning by predators. Basically, erratic behavior consists of vigorous writhing, body-snapping, or semirigid serpentine locomotion. Common adaptive or apparently adaptive elements are head-cocking, head-hiding, defecation, and cloacal sac discharge. Sham-aggression, tail-coiling, and head-tail self-mimicry are sterotyped displays that precede erratic behavior in some colubrids and elapids. Death-feigning sometimes follows erratic behavior and may be released by it. Death-feigning is adaptively less significant than erratic or sterotyped behavior, because it is infrequent and usually requires an initial tactile (attack) stimulus. The sudden behavioral change from erratic activity to death-feigning apparently startles some predators and causes the release of captured snakes. The sudden onset and simplicity of death-feigning suggest an involuntary reflex; the relative complexity and apparent stress of erratic behavior suggest endocrine control.

Gibbons, J. Whitfield. REPRODUCTIVE CHARACTERISTICS OF A FLORIDA POPULATION OF MUSK TURTLES *(STERNOTHAERUS ODORATUS)*. *Herpetologica* 26(2): 268-270, 2 figs. June 1970. *WR 138: 82*
[Savannah River Ecol. Lab., P.O. Box A, Aiken, S.C.] Abstract: Examination was made of musk turtles *(Sternothaerus odoratus)* in a central Florida population to determine clutch size, ovulation time, size at maturity, and extent of sexual dimorphism. The results indicate an earlier time of ovulation than previously reported and a positive relationship between clutch size and body size within a population. A small body size at the advent of maturity and sexual dimorphism were also observed. These findings substantiate general reproductive hypotheses reported for this species.

Goodman, Don E., and Coleman J. Goin. THE HABITAT OF *CENTROLENE GECKOIDEUM* IN ECUADOR. *Herpetologica* 26(2): 276. June 1970. *WR 138: 82*
[Univ. Fla., Gainesville.]

Gorman, Robert R., and J. Homer Ferguson. SUN-COMPASS ORIENTATION IN THE WESTERN TOAD, *BUFO BOREAS*. *Herpetologica* 26(1): 34-45, 5 figs. Mar. 1970. *WR 138: 83*

[Colo. State Univ., Fort Collins.] Abstract: The mechanisms that govern orientation in *Bufo boreas* were studied in the spring and summer of 1967. Toads were collected adjacent to the shores of several lakes in the vicinity of Moscow, Idaho. The compass direction of a line drawn perpendicular to the shoreline was recorded at the site of each collection. The toads were transported to the laboratory in closed containers and released in the center of a circular test pool. Their direction of movement was compared with the compass reading taken at the site of collection. The data from these tests indicate that *B. boreas* has a mechanism of orientation based on a sun-compass. There was no indication that either stellar or lunar cues are used by this species. The ability to use this system of orientation develops after metamorphosis. In order to use the sun as a compass, the animal must possess a "biological clock." Our data indicate that this clock is based upon the photoperiod. Experiments in the field demonstrated that *B. boreas* is capable of homing to a particular breeding site. Only toads with normal vision homed successfully.

Grahm, Terry E., and Khachig Tololyan. VARIATION IN A SAMPLE OF THE RED-SPOTTED NEWT, *NOTOPHTHALMUS V. VIRIDESCENS*, FROM SOUTHERN NEW HAMPSHIRE. *Bull. Md. Herpetol. Soc.* 6(1): 1-5. Mar. 1970. *WR 138: 83*

[Univ. Rhode Island, Kingston.] Nine measurable characteristics were recorded from a sample of 105 adult specimens. Males have significantly longer third digits on the right front and right rear feet than do females. The differences between male and female in total length, body length, tail length, number of red spots, interorbital width, internarial width, and number of caudal vertebrae are nonsignificant.

Haas, Georg, and Yehudah L. Werner. LIZARDS AND SNAKES FROM SOUTHWESTERN ASIA, COLLECTED BY HENRY FIELD. *Bull. Mus. Comp. Zool.* (Harvard Univ.) 138(6): 327-405, 12 figs. + 21 pls. 17 Dec. 1969. *WR 138: 83*

Descriptions of 63 spp. and sspp.

Harris, Herbert S., Jr. *RATTUS NORVEGICUS* EPIDERMIS, AN APPARENTLY UNDIGESTABLE ITEM IN THE DIET OF A CAPTIVE *ANDRIAS DAVIDIANUS*. *Bull. Md. Herpetol. Soc.* 6(1): 8. Mar. 1970. *WR 138: 83*

[Nat. Hist. Soc. Md., Inc., 2643 N. Charles St., Baltimore, Md.]

Hassinger, Dawn D. NOTES ON THE THERMAL PROPERTIES OF FROG EGGS. *Herpetologica* 26(1): 49-51. Mar. 1970. *WR 138: 83*

[Rutgers Univ., Newark, N.J.] *"Rana sylvatica* and *R. pipiens."*

Hassinger, Dawn D., and James D. Anderson. THE EFFECT OF LUNAR ECLIPSE ON NOCTURNAL STRATIFICATION OF LARVAL *AMBYSTOMA OPACUM*. *Copeia* 1970(1): 178-179. 2 Mar. 1970. *WR 138: 83*

[Rutgers Univ., Newark, N.J.]

Henderson, Robert W. CAUDAL LURING IN A JUVENILE RUSSELL'S VIPER. *Herpetologica* 26(2): 276-277. June 1970. *WR 138: 83*

[Stouffer Place 10-4, Lawrence, Kans.]

Herpetological Information Search Systems. CURRENT HERPETOLOGICAL TITLES, VIII: 1968-69. *Herpetol. Rev.* no. 9. p. 9-30, [1] fig. Dec. 1969. *WR 138: 83*

[Am. Mus. Nat. Hist., New York, N.Y.]

Hines, Tommy C., Michael J. Fogarty, and L. Carlton Chappell. ALLIGATOR RESEARCH IN FLORIDA: A PROGRESS REPORT. *Proc. 22nd Ann. Conf. SE Assoc. Game & Fish Comms.* p. 166-180, 4 figs. 1968 [1969]. *WR 138: 83*

[Buffalo Springs Game Farm, Route 1, Rutledge, Tenn.] Abstract: Since the summer of 1965, an alligator research program has been conducted in the Everglades of southern Florida. This report describes the progress of the program. Various

capture and marking techniques are described and evaluated. Data on growth rates, movement, homing tendencies, and sex and age interpretation from approximately 1,000 tagged alligators are presented. Life history observations, including population trends, activity surrounding a "gator hole", and the effect of water level fluctuation are reported. Man's influences on the alligator population, both from the standpoints of habitat manipulation and poaching, are discussed.

Hsü, Chih-yün, and Hsü-mu Liang. SEX RACES OF *RANA CATESBEIANA* IN TAIWAN. *Herpetologica* 26(2): 214-221, 11 figs. June 1970. *WR 138: 84*
[Natl. Defense Med. Center, P.O. Box 7432, Taipei, Taiwan.]

Hurlbert, Stuart H. THE BREEDING MIGRATIONS AND INTERHABITAT WANDERING OF THE VERMILION-SPOTTED NEWT *NOTOPHTHALMUS VIRIDESCENS* (RAFINESQUE). *Ecol. Monog.* 39(4): 465-488, 7 figs. Autumn 1969. *WR 138: 84*
[Univ. Calif., Riverside.] Breeding migrations to ponds occurred in both spring and fall, with the spring migrations consisting both of efts and adults and the fall migration being mostly adults. Males arrived at the ponds earlier in the spring and later in the fall than females. Migrating newts tended to follow dry streambeds or slope junctions; about 57% of the migrants arrived at the pond during daylight. For a brief period following their arrival at a pond migrants wandered back and forth between water and land, especially during rainy weather.--From abstr. Courtesy/ Paul A. Stewart.

Hutchison, Victor H., and Michael R. Ferrance. THERMAL TOLERANCES OF *RANA PIPIENS* ACCLIMATED TO DAILY TEMPERATURE CYCLES. *Herpetologica* 26(1): 1-8, 4 figs. Mar. 1970. *WR 138: 84*
[Univ. R.I., Kingston.]

Kelleher, Kevin E., and John R. Tester. HOMING AND SURVIVAL IN THE MANITOBA TOAD, *BUFO HEMIOPHRYS*, IN MINNESOTA. *Ecology* 50(6): 1040-1048, 3 figs. Autumn 1969. *WR 138: 84*
[Univ. Minn., Minneapolis.] Toads returned in the fall to the same areas left the previous spring for breeding areas with populations from diverse areas. Adult males emerged from their wintering places before females, and adults emerged before juveniles. Deep frost in the soil delayed emergence. Adult sex ratios varied from 33 to 38% males. Survival of toads from one year to the next was from 23.9 to 44.4%, with juveniles having lower over-winter survival rates than adults.--From abstr. Courtesy/ Paul A. Stewart.

Kemp, Frederick D. THERMAL REINFORCEMENT AND THERMOREGULATORY BEHAVIOUR IN THE LIZARD *DIPSOSAURUS DORSALIS*: AN OPERANT TECHNIQUE. *Animal Behaviour* 17(3): 446-451, 2 figs. Aug. 1969. *WR 138: 84*
[Univ. Waterloo, Waterloo, Ontario, Canada.]

Kowalski, Wa/adys/aw. HERPETOFAUNA REZERWATU ŻEŻCZAK POD RACIBORZEM. [AMPHIBIANS AND REPTILES OF THE "ŻEŻCZAK" RESERVE NEAR RACIBÓRZ.] *Ochrona Przyrody* 34: 205-225, 9 figs. 1969. In Polish with English summ. *WR 138: 84*
[Coll. Agr., Szczecin, Poland.] Notes on 10 spp. of amphibians and 3 spp. of reptiles.

Lillywhite, Harvey B. BEHAVIORAL TEMPERATURE REGULATION IN THE BULLFROG, *RANA CATESBEIANA*. *Copeia* 1970(1): 158-168, 5 figs. 2 Mar. 1970. *WR 138: 84*
[Univ. Calif., Los Angeles.]

Mao, Shou-hsian. FOOD OF THE COMMON VENOMOUS SNAKES OF TAIWAN. *Herpetologica* 26(1): 45-48. Mar. 1970. *WR 138: 84*
[Natl. Defense Med. Center, Taipei, Taiwan.] Abstract: Taiwan poisonous snakes feed throughout the year with the possible exception of the coldest months. Food intake seems to be greatest in summer and fall. The krait preys on fish and snakes; the cobra on snakes, birds and rodents; the habu on rodents and shrews; and the bamboo snake on frogs.

Marcellini, Dale, and James P. Mackey. HABITAT PREFERENCES OF THE LIZARDS, *SCELOPORUS OCCIDENTALIS* AND *S. GRACIOSUS* (LACERTILIA, IGUANIDAE). *Herpetologica* 26(1): 51-56, 1 fig. Mar. 1970. *WR 138: 85*

[Univ. Okla., Norman.] Abstract: Habitat preferences were determined quantitatively for two sympatric species of lizards in northern California. *Sceloporus g. graciosus*, the northern sagebrush lizard, was found to be completely terrestrial and to prefer shrubby and open areas. *Sceloporus o. occidentalis*, the northwestern fence lizard, was found to be partially arboreal and to have a more varied habitat preference.

McDiarmid, Roy W., and Richard D. Worthington. CONCERNING THE REPRODUCTIVE HABITS OF TROPICAL PLETHODONTID SALAMANDERS. *Herpetologica* 26(1): 57-70, 4 figs. Mar. 1970. *WR 138: 85*

[Univ. South Fla., Tampa.] Abstract: Eggs of *Pseudoeurycea nigromaculata* (Taylor) from Cerro Chicahuaxtla, Veracruz, and eggs and embryos of *P. juarezi* Regal from Cerro Pelón, Oaxaca, México, are described for the first time. They exhibit many similarities to the eggs of *P. exspectata, Hydromantes*, and *Batrachoseps* in number of envelopes and in bead-like type of connection. The eggs of *P. bellii, Parvimolge townsendi*, and several species of *Bolitoglossa* are adherent rather than stranded. It is postulated that in some species of tropical plethodontid salamanders egg deposition is timed so that hatching occurs during the wet season, a more favorable time for the young.

McGinnis, Samuel M. FLEXIBILITY OF THERMOREGULATORY BEHAVIOR IN THE WESTERN FENCE LIZARD *SCELOPORUS OCCIDENTALIS*. *Herpetologica* 26(1): 70-76, 3 figs. Mar. 1970. *WR 138: 85*

[Calif. State Coll., Hayward.] Abstract: The body temperature and thermal behavior of the western fence lizard was continuously monitored in the natural habitat by radiotelemetry and direct observation under various daily temperature conditions. Great flexibility in thermoregulatory behavior allows this species to attain and maintain satisfactory body temperatures under varying ambient conditions. Such behavior permits greater habitat utilization.

Minton, Sherman A., Jr. THE FEEDING STRIKE OF THE TIMBER RATTLESNAKE. *J. Herpetol.* 3(3-4): 121-124. Dec. 1969. *WR 138: 85*

[Ind. Univ. Med. Center, Indianapolis.] Prey was usually struck in the chest or lumbar region. Massive hemorrhages usually marked the site of venom inoculation. The interval from strike to incapacitation of prey varied from a few seconds to an hour or more; in almost half the instances it was less than two minutes.--From abstr.

Montanucci, Richard R. ANALYSIS OF HYBRIDIZATION BETWEEN *CROTAPHYTUS WISLIZENII* AND *CROTAPHYTUS SILUS* (SAURIA: IGUANIDAE) IN CALIFORNIA. *Copeia* 1970(1): 104-123, 12 figs. 2 Mar. 1970. *WR 138: 85*

[Univ. Kans., Lawrence.] Morphology, ecology and behavior of the two species are considered in detail.

Mount, Robert H., and Terry D. Schwaner. TAXONOMIC AND DISTRIBUTIONAL RELATIONSHIPS BETWEEN THE WATER SNAKES *NATRIX TAXISPILOTA* (HOLBROOK) AND *NATRIX RHOMBIFERA* (HALLOWELL). *Herpetologica* 26(1): 76-82, 2 figs. Mar. 1970. *WR 138: 85*

[Auburn Univ., Auburn, Ala.]

Ober, Lewis D. REPRODUCTION IN THE ANGUID LIZARD, *DIPLOGLOSSUS CURTISSI APORUS* SCHWARTZ. *Herpetologica* 26(2): 275. June 1970. *WR 138: 85*

[Miami-Dade Jr. Coll., Miami, Fla.]

Packard, Gary C., and Mary J. Packard. ECCRITIC TEMPERATURES OF ZEBRA-TAILED LIZARDS ON THE MOJAVE DESERT. *Herpetologica* 26(2): 168-172, 2 figs. June 1970. *WR 138: 85*

[Colo. State Univ., Fort Collins.] *"Callisurus draconoides."*

Papenfuss, Theodore J. PRELIMINARY ANALYSIS OF THE REPTILES OF ARID CENTRAL WEST AFRICA. *Wasmann J. Biol.* 27(2): 249-325, [9] figs. Fall 1969. *WR 138: 86*
[Calif. Acad. Sci., San Francisco.]

Peters, James A., and Braulio Orejas-Miranda. CATALOGUE OF THE NEOTROPICAL SQUAMATA: PART I. SNAKES. *U.S. Natl. Mus. Bull.* 297. viii + 347 p., illus. 1970. In English and Spanish. For sale by Supt. Documents at $6.75 per set of 2 volumes, sold in sets only. *WR 138: 86*
Essentially a bilingual (English and Spanish) workable field manual with keys designed to help identification without laboratory facilities. It covers the snakes "from the border between Mexico and Guatemala south throughout continental South America and all off-shore islands within the continental shelf. The Galapagos and islands of the Caribbean are not included. The arrangement of the generic accounts is alphabetic rather than phyllogenetic in both parts of this bulletin.

Peters, James A., and Roberto Donoso-Barros. CATALOGUE OF THE NEOTROPICAL SQUAMATA: PART II. LIZARDS AND AMPHISBAENIANS. *U.S. Natl. Mus. Bull.* 297. viii + 293 p., illus. 1970. In English and Spanish. For sale by Supt. Documents at $6.75 per set of 2 volumes, sold in sets only. *WR 138: 86*
A continuation of the above. This part considers the lizards of the area delimited and has the same format with bilingual English and Spanish keys. The species indices to each part are independent and pertain to the forms described in the respective part.

Pianka, Eric R. SYMPATRY OF DESERT LIZARDS *(CTENOTUS)* IN WESTERN AUSTRALIA. *Ecology* 50(6): 1013-1030, 13 figs. Autumn 1969. *WR 138: 86*
[Univ. Texas, Austin.] Larger species utilize larger prey items than smaller ones. Six species do most of their foraging in open spaces between plants; six others forage mostly within the dense tussocks of porcupine grass. The lizards feeding in open places have larger legs than those feeding in grass tussocks. Lizards with higher body temperatures are active later in the day than those with lower body temperatures. The species which forage in the open have a poor correlation between air temperatures and body temperatures; species that forage in shady places have body temperatures closely correlated with ambient air temperatures.--From abstr. Courtesy/ Paul A. Stewart.

Pianka, Eric R., and Helen D. Pianka. THE ECOLOGY OF *MOLOCH HORRIDUS* (LACERTILIA: AGAMIDAE) IN WESTERN AUSTRALIA. *Copeia* 1970(1): 90-103, 6 figs. 2 Mar. 1970. *WR 138: 86*
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The Department works to assure the wisest choice in managing all our resources so that each shall make its full contribution to a better United States now and in the future.

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